PACOM

USER'S MANUAL

DIGITAL VIDEO RECORDER

Simultaneous Monitoring, Recording, Playback, Backup and Remote Access

Record Speed up to Max. 480 ips with NTSC (400 ips with PAL)

Record Timetable for Quick and Easy Searching

Various Record Modes (Time-lapse, Event-driven and Pre-alarm Recording)

Programmable Motion Detection and Object Tracker

Print and Save Functions

Audio Recording and Playback

Web / Mobile Monitoring

DVR Name Service

Remote Monitoring, Remote Playback and Remote Control

Various Network Environments (LAN, PSTN, ISDN and ADSL)

Secure Database Structure

Chained Fingerprint Encryption

Hardware Watchdog Timer Function

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. Pacific Communications is not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

Important Safeguards

1. Read Instructions
All the safety and operating instructions should be read before the appliance is operated.

2. Keep Instructions
The safety and operating instructions should be kept for future reference.

3. Cleaning
Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

4. Attachments
Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

5. Water and/or Moisture
Do not use this equipment near water or in contact with water.

6. Accessories
Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.

This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

7. Ventilation
Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to ensure reliable operation of the equipment and to protect it from overheating. These openings must not be blocked or covered. Do not block these openings or allow them to be blocked by placing the equipment on a bed, sofa, rug, or bookcase. Ensure that there is adequate ventilation and that the manufacturer's instructions have been adhered to.

8. Power Sources
This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.

9. Power Cords
Operator or installer must remove power and other connections before handling the equipment.

10. Lightning
For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.

11. Overloading
Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

12. Objects and Liquids
Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

13. Servicing
Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

14. Damage requiring Service
Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

A. When the power-supply cord or the plug has been damaged.
B. If liquid is spilled, or objects have fallen into the equipment.
C. If the equipment has been exposed to rain or water.
D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
E. If the equipment has been dropped, or the cabinet damaged.
F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

15. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

16. Safety Check
Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

17. Field Installation
This installation should be made by a qualified service person and should conform to all local codes.

18. Telnet Communication Cable
Caution: To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

19. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by manufacturer. Discard used batteries according to the manufacturer's instruction.

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Chapter 1 — Product Information

Features

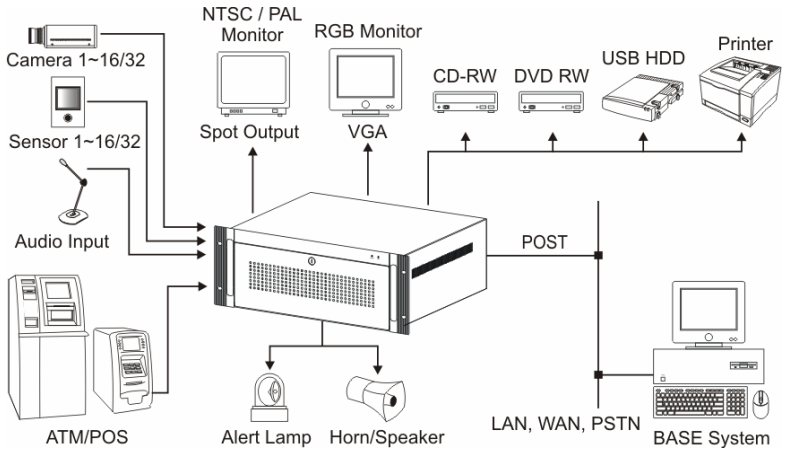
- Compatible with color cameras and other standard video sources
- Compatible with network cameras (4032 model only)
- Video synchronization not required
- Pentaplex operation for simultaneous recording, multi-screen viewing, playback, remote monitoring and archiving
- Versatile display formats for convenient user interface; single-screen, full-screen, quad, 3x3, 4x4, 5x5, 3+4, 2+8 and 1+32
- Main and Spot monitor outputs
- On-screen graphic display including camera title, location, recording status and mode display
- Sequence mode available in all screen formats
- Hardware watchdog timer function
- Programmable motion detection for each camera input using graphic user interface
- Various image enhancement functions including zoom in/out, brightness, interpolation, blur and sharpness
- Remote monitoring, playback and control through LAN, PSTN and ISDN
- User-friendly interface
- Proprietary encryption scheme preventing video from alteration
- Max. 32-channel alarm input and 32-channel alarm output (Not included in all models)

NOTE: This manual covers the 16- and 32channel digital video recorders For simplicity, the illustrations and descriptions in this manual refer to the 32-channel model. See *Appendix 11 – Specifications* for the system specifications of each model.

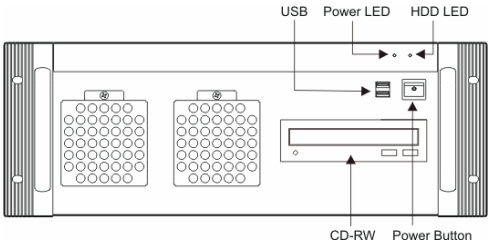
System Types

There are two system types: POST DVR system and BASE system. The POST is a complete DVR system with cameras, and the BASE is a computer with software to access the POST DVR. The BASE can view live or previously recorded video from the POST DVR. The POST DVR can access another POST DVR when they are networked via LAN, however, it can only review previously recorded video and cannot view live video from the other POST DVR.

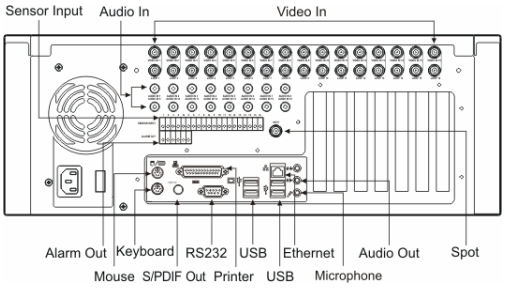
System Diagram



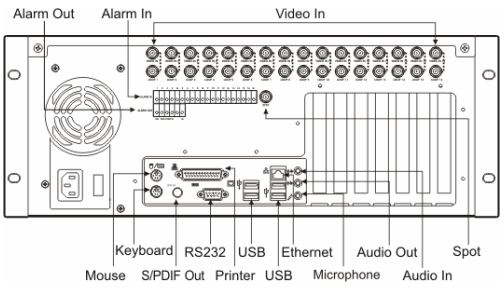
Front Panel



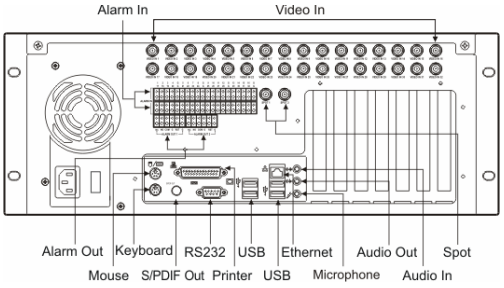
Rear Panel



PDR-RMT-RT model

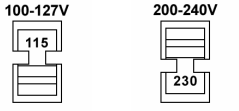


PDR16-RMT series and IDR4032(Hybrid) models



PDR32-RMT and PDR32-RMT-X models

NOTE: Check the voltage selector switch is set to an appropriate position.



NOTE: Windows may not operate properly when using the USB connectors on the front panel of the DVR, depending on the model type of the USB device. In this case, connect the USB device after Windows boots properly or use the USB connectors located on the rear panel.

Turning On the DVR

Press the power button located on the front panel to turn the system on. The system goes into the SmartGuard mode as soon as it finishes its boot process.

CAUTION: The system will lock up if the monitor does not have high enough resolution. The DVR requires 1024x768 resolution.

Turning Off the DVR

Click the POWER button in the SmartGuard mode or press the power button on the front panel to turn the system off.

NOTE: When turning off the system, you must confirm that you want to turn off the unit. You will also be asked for a user ID and password, or system quit procedure if the *Shut Down* option was selected for the user's authorization during the SmartGuard setup.

CAUTION: The system can be shut down by force by pressing the power button on the front panel over 10 seconds. However, follow the normal shutdown procedures as mentioned above when the system is operating normally. Turning off the DVR without shutdown procedures can cause damage to the system.

Chapter 2 — Tools

SmartGuard

Overview

SmartGuard is powerful surveillance software. It provides multiplexer functions, digital time-lapse recording and event-driven recording. SmartGuard also provides motion detection, PTZ control and various image enhancement functions.

NOTE: The first time you turn on the system, it will immediately begin recording. If you have less than 32 cameras, you must enter the setup screen and deactivate any inputs to which cameras are not connected; otherwise, the recording speed might be decreased somewhat.

Features

- Max. 32 channels
- Max. 480 images/sec recording (400 images/sec PAL) (PDR16-RMT-RT model)
- User-friendly interface
- Scheduling by camera and time
- Time-lapse or event-driven recording
- Motion detection and object tracker function
- Audio recording
- PTZ control

NOTE: See *Appendix 11 – Specifications* for the maximum recording speed of each model.

Main GUI

Quit: Click the button to quit the system.

Login / Logout: Click the button to log in or log out the system.

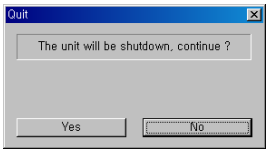
Logging In/Out the System

Click the Logout button after logging out, the following User Login dialog box appears. Enter the User ID and Password and then click the OK button if you want to log in the system. If the login fails more than three times, the buzzer will be activated for three minutes. The successful login can stop the buzzer trigger during the buzzer activation. The log for failed login as well as successful login will be displayed on the system status window.

NOTE: When *No local login* is selected during the SmartGuard – Authority setup, the DVR does not ask login procedure.

NOTE: When you forgot the password, ask your dealer or distributor.

Click the Login button after logging in, the following Quit dialog box appears. Click the Yes button if you want to log out the system.



Monitor

Display Format: Various display formats (single-screen, full-screen, quad, 3+4, 3x3, 2+8, 4x4, 5x5 and 1+32) are provided for convenient user interface. Each format can be selected by clicking the screen buttons shown below. The camera groups for multi-screen formats are composed of cameras 1 to 32 in order. The user can select which camera group is displayed by clicking any camera button in a group from camera buttons shown below.

OSD: Information including camera title, recording mode, and recording status can be displayed on the image. Go to Setting Up the System and Setting Up Cameras in the SmartGuard Setup section, and place a check in the Show OSD box to display the OSD information.

System Status

Clock Mode: Click the left mouse button on the clock area to set date display (MM-DD-YYYY/...) and time display (12 Hours/24 Hours) formats. Click the right mouse button on the clock area to set date, time and time zone.

CAUTION: If you change the time, images dated later than the new date/time are deleted. Back up the images if you want to save them.

HDD Indicator: Shows the remaining hard disk space.

Power LED: The Power LED is lit when the DVR is On.

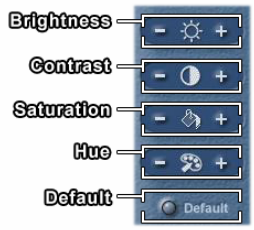
Alarm LED: The Sensor Detect LED is lit when the sensor has been detected.

Mode Status: The Recording LED is lit when the DVR is in the recording mode.

HDD Usage: The Repeat Recording LED is lit when the DVR is set to repeat recording in case of recording space shortage.

Image Adjust

You can adjust the brightness, contrast, hue and saturation by clicking the designated buttons. Click the Default button to reset them to the default settings.

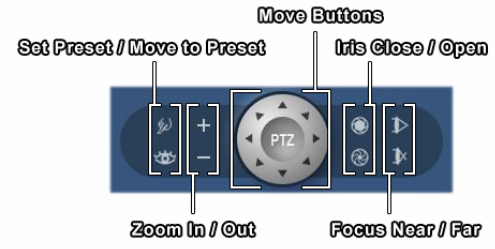


NOTE: These adjustments should not be used to correct improperly set cameras or monitors.

PTZ Control

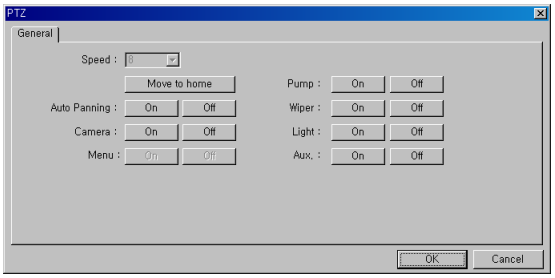
The DVR provides transmission functions, and you can control popular PTZ devices and dome cameras. Clicking the PTZ icon

button displays the PTZ control buttons as shown below. You can also use the mouse to control PTZ functions. Click the right mouse button on the image and move that that image to the direction you want by dragging the mouse. Roll the mouse wheel to zoom in or out.



NOTE: Up to 128 presets can be set, depending on the specification of installed PTZ devices or dome cameras. Make sure available preset numbers first to make the PTZ preset function work properly.

NOTE: If you want to set up the advanced PTZ control, place the cursor on the PTZ control panel, and click the right mouse button. Make sure that the PTZ camera to set up supports advanced PTZ control functions first.

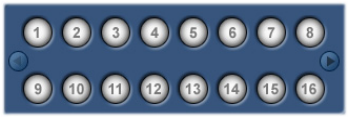


- Speed: Set the pan/tilt speed (from 1 to 16). The higher the number, the faster it moves.
- Move to origin: Click the button if you want to move the camera to the origin position.
- Auto Panning: Enables or disables auto panning.
- Camera: Turns on or turns off the camera.
- Menu: Enables or disables the menu function.
- Pump / Wiper / Light / Aux: Enables or disables pump, wiper, light and other available functions.

Alarm Control

Clicking the alarm icon

button causes the alarm control buttons to display as shown below. The user can check the alarm status and control the alarm output. Pressed alarm button is active mode, and released button is inactive mode. The user can active or inactive alarm output manually by clicking the button when it is released or pressed. If the user disables the alarm during the Alarm setup on the SmartGuard, the alarm button will be disabled. Click the left or right arrow buttons to display the previous or next alarm button panel.



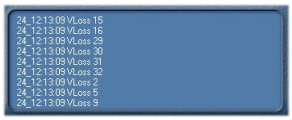
POS

Clicking the POS icon

button causes the POS control buttons to display as shown below. The system status window will display the POS data. Click the right mouse button on the window to toggle two display modes: POS data display mode, and event log including POS data display mode. The POS button LED will be lit while the data is coming from the POS. If you do not want to display the data from the POS, release the target POS number button. If the user disables the POS device during the Text-In setup on the SmartGuard, the POS button will be disabled.

NOTE: Installing the KeyLock to the USB port on the DVR is required for operating the POS system. Ask your dealer or installer for details.

Event Logging



To scroll up and down the list, hold down the left mouse button on the list and move the cursor up and down, or roll the mouse wheel on the list.

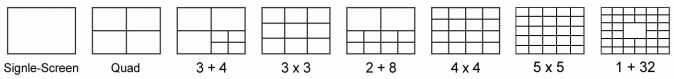
NOTE: Event log list displays the conditions of hard disk drives when the installed IDE hard disk drives support S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) Monitoring program. If the DVR senses that the status of the hard disk drives is Poor, the error messages box screen will appear. Once the error message box displays, replacing the hard disk drive as soon as possible is recommended, usually within 24 hours.

Camera Buttons

Click the individual camera buttons to display the selected camera. Click the or button to display the previous or next camera button panel.

Screen Buttons

To select the desired screen mode, click of the buttons shown below.



- To view a specific image in the single-screen mode, move the cursor to that image and double click the left mouse button.
- To return to the previous screen mode from the single-screen mode, click the left mouse button in the window.

Utility Buttons

Auto Sequencing: When the Sequence button is clicked, the SmartGuard sequences the cameras in order. Whenever you click the button, it toggles between On and Off. The switching interval can be set during the system setup.

Mode Selection: The record mode is selected when the Record button is clicked. SmartGuard returns to view only mode automatically when it is unable to record (for example, when the hard disk is full).

NOTE: The DVR records only in accordance with the recording schedule, which can be set during the system setup. Before you install the DVR, you need to fully understand the recording schedule. Note also that clicking the *Record* button only prepares the DVR for recording. In this state, the DVR will follow the recording schedule.

Manual Alarm Output: In general, the alarm is activated automatically when any related sensor is activated. However, the user can activate all the alarm output manually by clicking the button while it is released or deactivate all the alarm output by clicking the button when it is pressed.

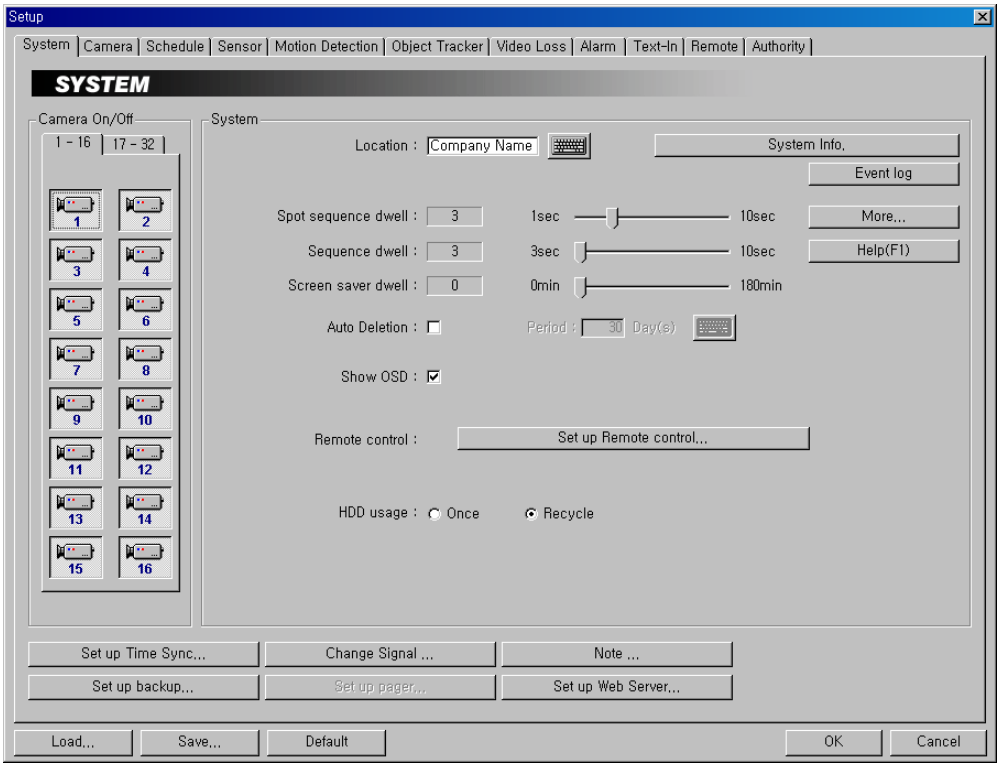
Setup: When the Setup button is clicked, a dialog box appears. The dialog box has nine tabs. See the following SmartGuard Setup section.

Accessing SmartSearch: Click the Search button to run the SmartSearch.

Full Screen: Click this button to enter the full-screen mode. All of the control buttons disappear, and the monitoring window takes up the full screen in the full-screen display mode. To return from the full-screen mode, click the left mouse button anywhere on the screen.

SmartGuard Setup

Setting Up the System

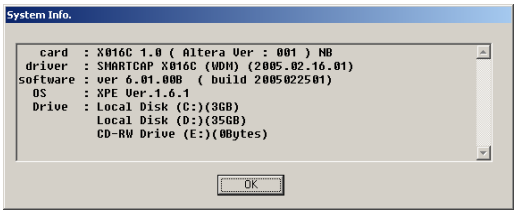


1. Click the Camera icon to enable the camera.

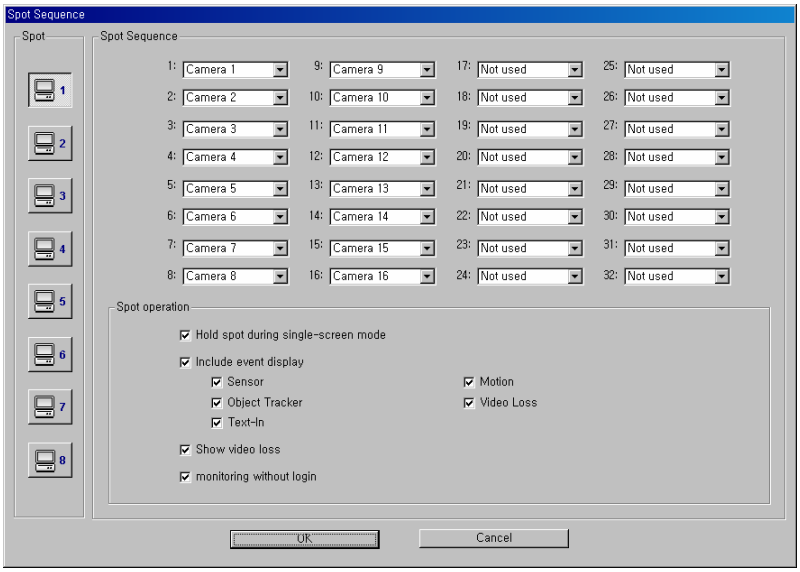
NOTE: Selecting *1-16* tab displays camera channels 1 to 16 and selecting *17-32* tab displays 17 to 32.

2. Click the text field beside Location. If you have a keyboard attached to your unit, enter a location name such as "Main Office". If you do not have a keyboard connected to the unit, clicking the keyboard icon will display a virtual keyboard on which you can type by clicking the letters.

3. Click the System Info… button, and the System Information dialog box appears. The dialog box displays the information of the installed card, driver, software, hard disk drive, and OS on the system.


System Info.
card : X816C 1.0 (Altera Ver : 001) NB
driver : SMARTCAP X816C (WDM) (2005.02.16.01)
software : ver 6.01.00B (build 2005022501)
OS : XPE Ver.1.6.1
Drive : Local Disk (C:)(3GB)
Local Disk (D:)(35GB)
CD-RW Drive (E:)(0Bytes)
OK

4. Click the Event log button to display the event log list of the system.
5. Click the Help (F1) button to display the electronic file of user's manual. The Help function also can be enabled by hitting the F1 key on the keyboard.
6. Move to Spot sequence dwell, and set the sequence dwell time for the Spot monitor by holding down and dragging the pointer. If you set the value to 3 seconds, the camera display will sequence every three seconds on the Spot monitor.
7. Click the More… button, and set up the spot sequence in detail.



8. Move to Spot, and click the Spot monitor icon to connect. No (0), one, four or eight monitors can be connected according to the DVR specification.
9. Move to Spot Sequence, and select the camera number for each number (32-channel DVR: Camera 1 to 16 for Spot 1 to 4 and Camera 17 to 32 for Spot 5 to 8, 16-channel DVR: Camera 1 to 16 for Spot 1 to 8) to sequence or Not Used from a drop-down list.
10. Move to Hold spot during single-screen mode, and check the box if you do not want the cameras sequence on the Spot monitor while the main monitor is set to the single-screen display mode.
11. Move to Include event display, and check the box and select the type of event you want to display during spot sequence. Multiple events can be selected.

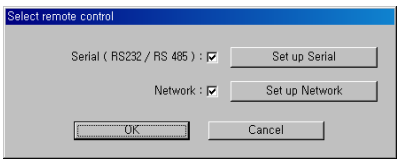
NOTE: Event display will be enabled when you set up the event monitoring during the Camera advanced setup. Refer to the *Setting Up Cameras* section for details.

12. Move to Show video loss, and check the box if you want to show the video loss image during spot sequence.
13. Move to Monitoring without login, and check the box if you want to view video on the Spot monitor without login.

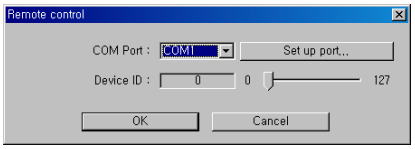
14. Move to Sequence dwell, and set the sequence dwell time for the main monitor by holding down and dragging the pointer. If you set the value to 3 seconds for the Sequence dwell, the camera display will sequence every three seconds on the Main monitor.
15. Move to Screen saver dwell, and set the screen saver dwell time for the display image. The screen saver will be activated if there is no keyboard or mouse operation during the preset dwell time.
16. Move to Auto Deletion, and check the box if you want to delete the video recorded earlier than user-defined period. When checking the Auto deletion box, move to Period and set the period to keep the recorded video. e.g. If you check the Auto deletion box, and set 30 days in the Period box, the DVR will automatically delete the video which is older than 30 days from the current day.
17. Move to Show OSD, and check the box if you want to display OSD information on the image. OSD information includes camera title, recording mode and recording status.

NOTE: An *R* indicates the target camera is in the *Time-lapse* recording schedule mode. An *E* indicates it is in the *Event-driven* recording mode. An *R/E* indicates it is in the *Time & Event* recording mode. An *R* located at the bottom-right corner indicates the DVR is recording video, and the blink rate of the *R* relates to the recording speed.

18. Move to Remote control, and click the Set up Remote control... button when the DVR is controlled remotely using the serial communication signals or via network connections.

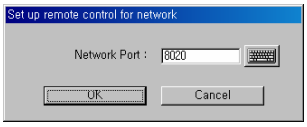


19. Move to Serial (RS232 / RS485), and check the box and click the Set up Serial when the DVR is controlled remotely using the serial communication signals. Select the DVR's COM port to use from the drop-down list. Click the Set up port... button, and set the Baud rate from 300 to 256,000. Select Parity from None, Even or Odd parity. Select Data bit from 7 bit or 8 bit format. Select Stop bit from 1 bit or 2 bits from the drop-down list. Move to Device ID, and set the device ID number from 0 to 127 using the slide bar. See Appendix 9 – Protocol for Remote Controlling DVR for details.



NOTE: When using the RS485 port on the extension card, the *COM2* port should be selected.

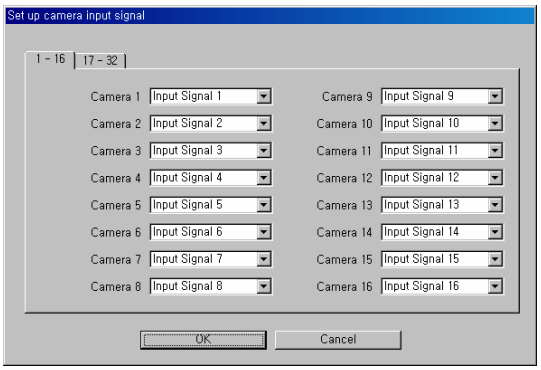
20. Move to Network, and check the box and click the Set up Network when the DVR is controlled remotely via network connections. Enter the Network Port number.



NOTE: When selecting the *Network remote control* for the user's authorization, you can control the DVR remotely via network connections. Refer to the *Setting Up the Authority* section for details.

21. Move to HDD usage, and select either Once or Recycle. When Once is selected, the DVR stops recording when the hard disk drive is full. When Recycle is selected, the DVR continues recording when the hard disk drive is full by overwriting the oldest video.

22. Click the Set up Time Sync… button, and set up the time synchronization if required. See Appendix 6 – Time Synchronization for details.
23. Click the Change Signal… button, and select the video input signal to each camera number (Camera 1 to Camera 32) from a drop-down list (Input Signal 1 to Input Signal 16 for the camera numbers 1 to 16, and Input Signal 17 to Input Signal 32 for the camera numbers 17 to 32).



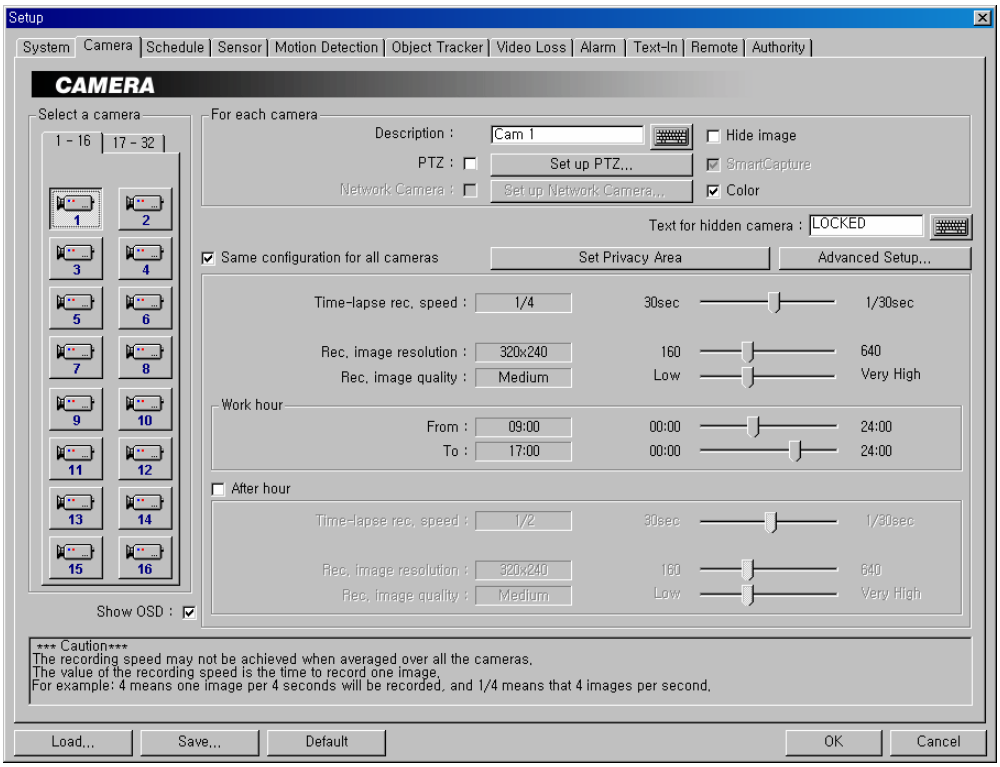
24. Click the Note… button, and set up the note function. The user can add or delete notes. If you want to read the note, select the line and click the View button. Click the Load button to load the saved note, the Save button to save the current note, and the Text Save button to save the current note to the text file.
25. Click the Set up backup... button, and set up backup information. See the SmartBackup section.
26. Click the Set up pager... button, and set up pager information. See the SmartPager section.

NOTE: The *Set up pager...* button will be activated if you set up SmartPager to start in the SmartGuard setup.

27. Click the Set up Web Server... button, and set up an IIS (Internet Information Services) for the WebGuard program.
28. Click the *Load...* button if you want to load typical settings. Click the *Save...* button if you want to save settings. Click the *Default* button if you want to load default settings. You can save your changes by clicking the *OK* button. Selecting *Cancel* exits the dialog box without saving the changes.

NOTE: Only the administrator level user can use the Load, Save and Default buttons.

Setting Up Cameras



CAUTION: The recording speed may not be achieved when averaged over all the cameras.

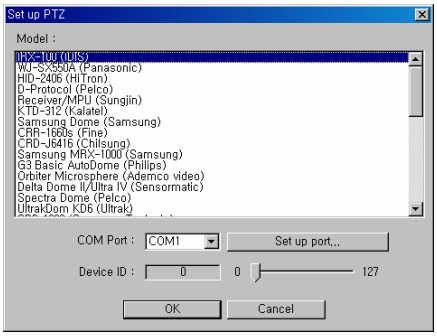
1. Click the Camera icon.

NOTE: Selecting *1-16* tab displays camera channels 1 to 16 and selecting *17-32* tab displays 17 to 32. Select *17-32* tab to set up network cameras. (4032 model only).

2. Move to Show OSD, and check the box if you want to show OSD information on the image of selected camera.
3. Click the text field beside Description, and enter a camera title such as "Front Door". You can use either the actual keyboard or the virtual keyboard.
4. Move to PTZ, and check the box to enable pan, tilt and zoom functions. (Not available for network cameras)

NOTE: To control camera pan, tilt and zoom, you must attach a compatible RX device or dome camera to the DVR. A list of supported RX devices and dome camera models can be found in the *Set up PTZ* dialog box. When controlling a PTZ camera via RS485, use the RS485 port on the extension card.

5. Click the Set up PTZ... button to display the Set up PTZ dialog box. Select the model of the installed RX device or dome camera from the Model list



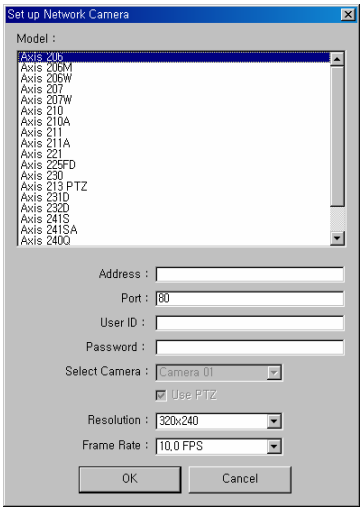
- COM Port: Select the COM port to use from the drop-down list.
- Set up port…: Click the button to display the Set up COM port dialog box. Set the Baud rate from 300 to 256,000, select the Parity from None, Even or Odd parity, select the Data bit from 7 bit or 8 bit format, select the Stop bit from 1 bit or 2 bits from the drop-down list.
- Device ID: Set the device ID number from 0 to 31 using the slide bar.

NOTE: When using the RS485 port on the extension card, the *COM2* port should be selected.

1. Move to Network Camera, and check the box to use network cameras. (4032 model only)

NOTE: When using all 16 camera channels, the recording speed might be decreased depending on the network conditions.

2. Click the Set up Network Camera… button to display the Set up Network Camera dialog box. Select the model of the installed network camera or video server from the Model list.



- Address / Port / User ID / Password: Enter the IP address, port number, user ID and password of the selected model.
- Select Camera: Select the camera to display on the screen if the selected model is a network video server.
- Use PTZ: Select the box to use PTZ function if the selected network camera supports PTZ function.
- Resolution: Set the display resolution of the selected network camera.

6. Move to Hide image, and check the box to hide the image of the selected camera on the monitor. If this box is checked, the selected camera will not be displayed on the monitor, however, the images from the camera will be recorded while in the record mode.

7. Click the text field beside Text for hidden camera, and enter the text to be displayed on the hidden camera using the actual keyboard or the virtual keyboard. If you leave this box empty, the gray screen without any text will be displayed for the hidden camera.
8. Move to SmartCapture, and check the box to use the SmartCapture technique.

NOTE: The DVR captures the images very quickly using a unique technique called SmartCapture. However, it is possible that some PAL cameras will have shaky images when using this program. Do not check this box if your cameras have shaky images.

9. Move to Color, and check the box when using a color camera. When using a B&W camera, make certain the box is not checked. This will reduce noise, giving better recorded image quality.

NOTE: The PDR16-RMT-RT model supports 16-channel audio input. If you select *Record Audio*, recording audio will be activated while the DVR is recording video. The Camera setup dialog box in this manual is for the 32-channel DVR, the *Record audio* option has been disabled.

10. Move to Same configuration for all cameras, and check the box to set all cameras with the same configuration.
11. Move to Time-lapse rec. speed, and set the recording speed for the time-lapse mode by holding down and dragging the pointer. You can set the speed from 30 to 1/30 seconds. The value of the recording speed is the time to record one image. Therefore the lower the value, the more images are recorded during the same time. For example: 30 means one image per 30 seconds will be recorded, 1 means one image per second, and 1/30 means that 30 images per second.

NOTE: The PDR16-RMT-X, PDR16-RMT-LIVE-X, PDR32-RMT and PDR32-RMT-X models have a maximum recording speed of 240 images per second (200 images for PAL) that will be applied globally depending on the number of cameras recorded. However, this maximum recording speed can be decreased when using more than eight cameras. The PDR16-RMT, PDR16-RMT-LIVE and IDR4032 (Hybrid) models have a maximum recording speed of 120 images per second (100 images for PAL), and this maximum recording speed can be decreased when using more than four cameras**.** See *Appendix 11 – Specifications* for the maximum recording speed of each model.

12. Move to Rec. image resolution, and set the record image size recorded by holding down and dragging the pointer.

NOTE: Higher resolution images require more storage space and will reduce the recording capacity of the hard disk drive. When set to *640x480* (*704x480 (704x576 PAL)* for PDR16-RMT-RT model*)*, video with lots of motion may have some artifacts.

NOTE: When recording the image of network cameras, the DVR will follow the display resolution established in step 7 if *Rec. image resolution* is higher than the display resolution of network cameras preset.

CAUTION: When setting the *Rec. image resolution* to *640x480* for any camera you select, all cameras will be set to 640x480 (PDR16-RMT-LIVE-X and PDR32-RMT-X models only).

13. Move to Rec. image quality, and set the record image quality by holding down and dragging the pointer. You can select the resolution from Low, Medium, High or Very High.

NOTE: Higher quality images require more storage space and will reduce the recording capacity of the hard disk drive.

NOTE: The maximum record image size and quality of pre-event recording will be restricted to *320x240* (*352x240(288)* for PDR16-RMT-RT model*)* and *Medium* regardless of setting values of *Rec. image resolution* and *Rec. image quality* in order to maximize the amount of pre-event video to be stored.

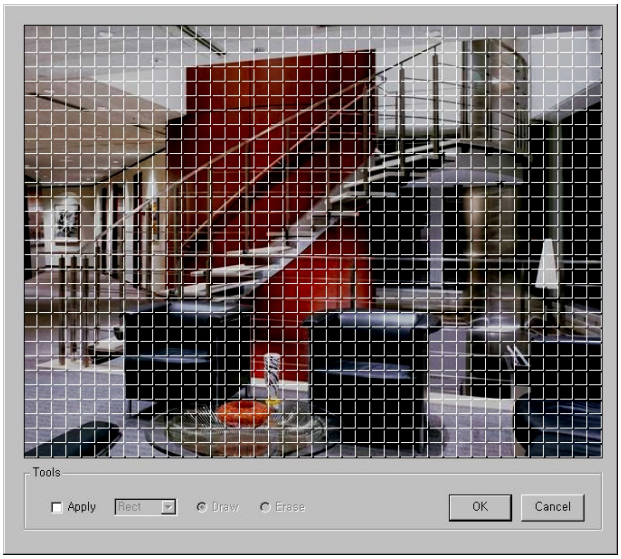
14. Move to Work hour and set the start time (From) and end time (To) of working hours by holding down and dragging the pointer.

NOTE: *Work hour* set in this menu is applied to the normal camera setup established in steps 10 to 12, and all hours except the Work hours will be *After hour*.

15. Move to After hour, and check the box if you want to set up different recording option during the hours outside hours established in Work hour. Then, set the Time-lapse rec. speed, Rec. image resolution and Rec. image quality by holding down and dragging the pointer. Refer to the steps 10 to 12 for the available values for each setting.

CAUTION: When setting the *Rec. image resolution* to *640x480* for any camera you select, all cameras will be set to 640x480 (PDR16-RMT-LIVE-X and PDR32-RMT-X models only).

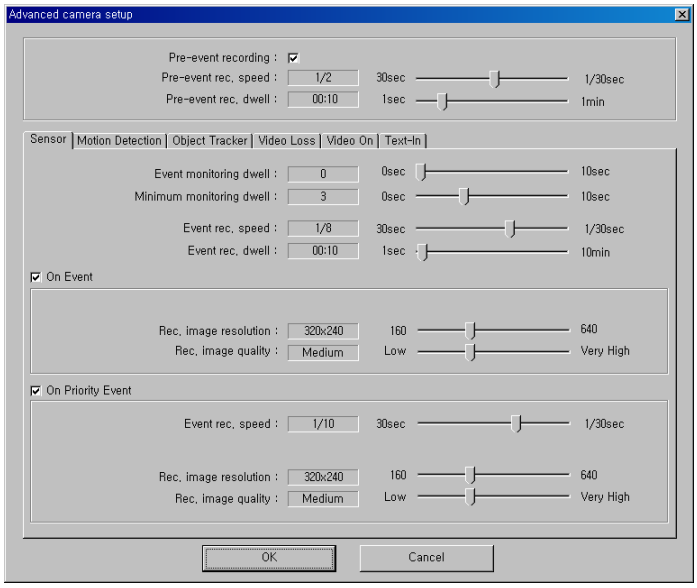
16. Click Set Privacy Area to set up the privacy area on the image. The selected area set as Privacy Area will NOT be displayed either in the live mode or playback mode. The DVR will display the selected areas in black, and also does NOT react to events detected within the area set as Privacy Area. Move to Apply and check box and then set the privacy area zone.



17. The setup screen is made up of a 40x30 grid. First, click the Draw radio button and select a tool to use from the drop-down list, and then set up the privacy area on the image. Use the tools as follows:
Point — Place the cursor on the image and click the left mouse button. A single box appears where the cursor is.
Line — This tool can be used to draw irregular shapes. Place the cursor where you want to start the line. Hold down the left mouse button and drag the cursor to where you want the end of the line. Release the mouse button and a group of boxes appears along the line you drew. You can draw lines around shapes by repeating this process.
Rectangle — Hold down the left mouse button and drag the cursor in any direction. A rectangle appears. Once the rectangle is the size you want, release the mouse button and the rectangle fills with boxes.
Fill — When using the fill tool, clicking the mouse will fill that area of the image with boxes. If a shape has been drawn with the line tool, clicking inside will fill the area with boxes. Clicking outside the area will fill the outer area with boxes. If no shapes have been drawn, the entire screen will fill with boxes.

NOTE: When you select the *Erase*, you can use the tools as described above to delete boxes.

18. Click Advanced Setup... to select an advanced camera setup. You can set up the pre-event recording and event recording options for each event.


Advanced camera setup
Pre-event recording :
Pre-event rec. speed : 1/2 30sec 1/30sec
Pre-event rec. dwell : 00:10 1sec 1min
Sensor | Motion Detection | Object Tracker | Video Loss | Video On | Text-In
Event monitoring dwell : 0 0sec 10sec
Minimum monitoring dwell : 3 0sec 10sec
Event rec. speed : 1/8 30sec 1/30sec
Event rec. dwell : 00:10 1sec 10min
On Event
Rec. image resolution : 320x240 160 640
Rec. image quality : Medium Low Very High
On Priority Event
Event rec. speed : 1/10 30sec 1/30sec
Rec. image resolution : 320x240 160 640
Rec. image quality : Medium Low Very High
OK
Cancel

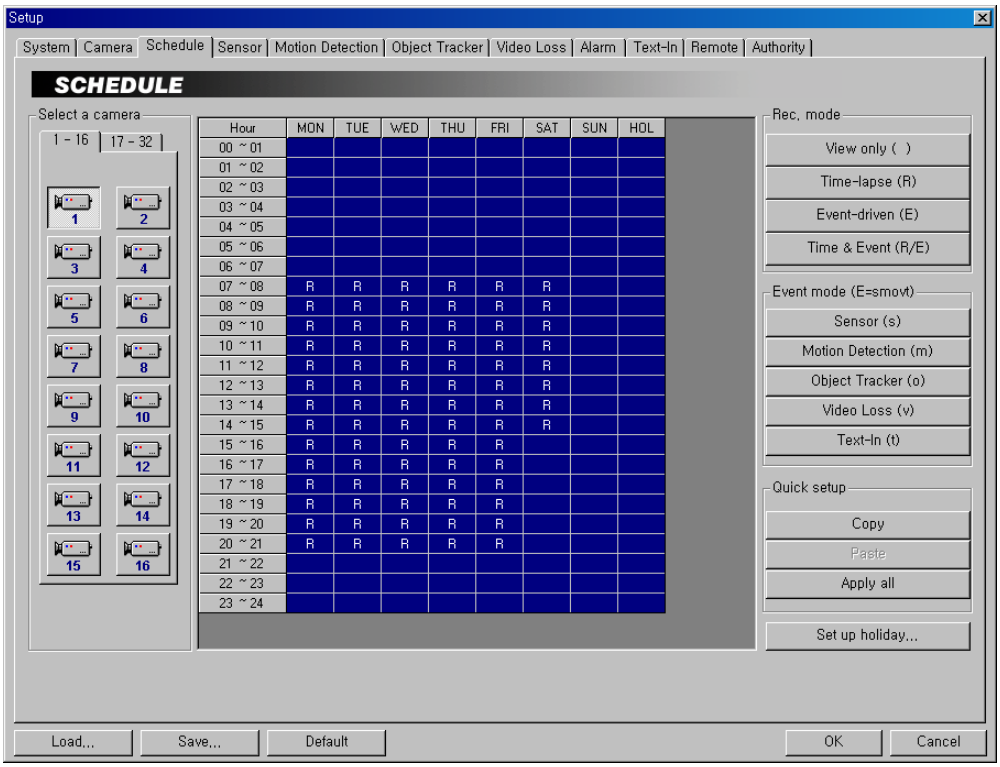
19. Move to Pre-event recording, and check the box to enable the pre-event recording.

NOTE: Pre-event recording cannot be configured for cameras 17 to 32.

20. Move to Pre-event rec. speed, and set the recording speed for the pre-event mode by holding down and dragging the pointer.
21. Move to Pre-event rec. dwell, and set the duration of pre-event recording by holding down and dragging the pointer.
22. Select the event tab to set up and set the Event monitoring dwell, Minimum monitoring dwell, Event rec. speed and Event rec. dwell for the event-driven mode by holding down and dragging the pointer.
23. Move to On event, and check the box if you want to use an advanced setup during event activation. Then, set the Rec. image resolution and Rec. image quality by holding down and dragging the pointer.
24. Move to On Priority event, and check the box if you want to use an advanced setup during high-priority event activation. Then, set the Recording speed, Rec. image resolution and Rec. image quality by holding down and dragging the pointer.
25. You can save your changes by clicking the OK button. Selecting Cancel exits the Advanced camera setup dialog box without saving the changes.

NOTE: The configuration of the Advanced camera setup is also set for all cameras when the *Same configuration for all cameras* is selected.

Setting Up Schedules



1. Click the Camera icon.
2. Move to the hour table, and set the recording schedule for each day (MON to SUN) and holidays (HOL). Select the hours to record by holding down on the recording start time and dragging to recording finish time. The hour selection will be made through both hours and days. The cells you select will be filled in blue.
3. Click the desired recording mode button under the Rec. mode. The recording modes are: View only (blank), Time-lapse (R), Event-driven (E) or Time & Event (R/E). If you click the Time-lapse button, an R will display in the selected cells. Nothing displays when selecting View only.

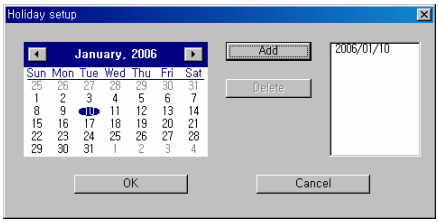
NOTE: The DVR provides four different recording modes. *View only mode* — No recording will be made during selected hours. *Time-lapse mode* — Time-lapse recording will be made during selected hours. *Event mode* — Event-driven recording will be made during selected hours. *Time & Event mode* — Time-lapse recording will be made during selected hours and the DVR will go into the event-driven recording mode during selected hours when an event occurs.

4. Click the desired event(s) button under the Event mode (E=smovt) to be associate with the event recording mode. Click the event button to toggle On and Off. Various recording modes (e.g. R, R/s, s, mo, smov, R/smov, R/E, etc) may display in the time table according to settings of user defined Event modes. If you select all available events, and E will display in the selected cells.

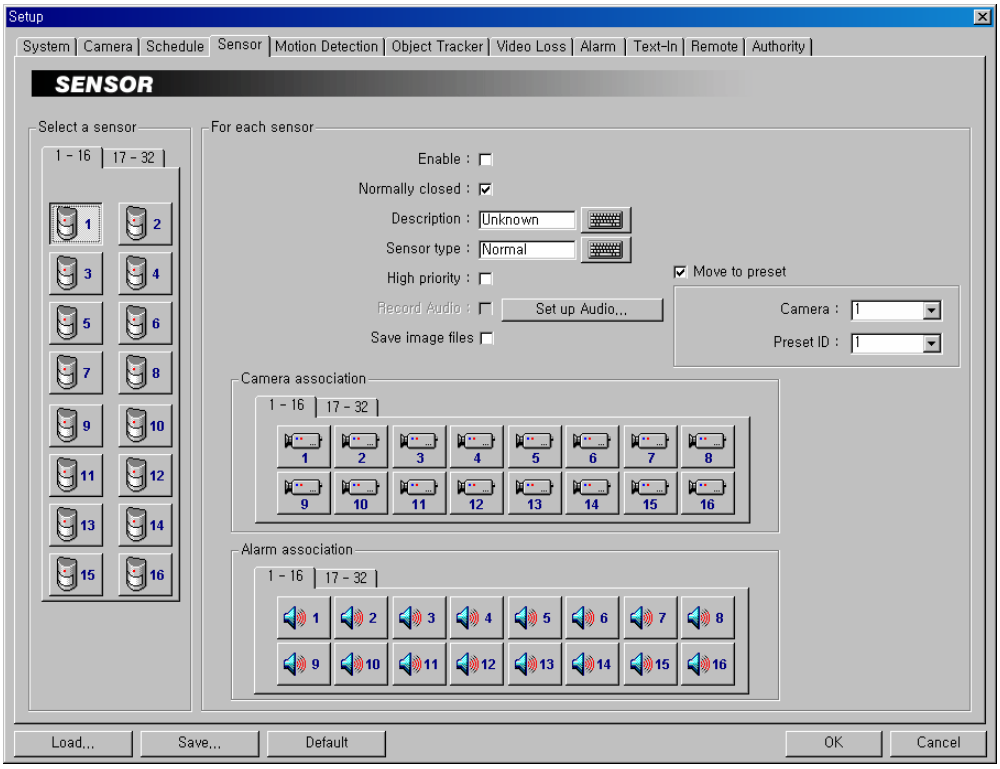
NOTE: *Video Loss (v)* in Event mode includes both video loss and video obscuration detection.

5. Use the Quick setup to adjust the current settings of the selected camera to another camera. Click the Copy button, and select another camera to be scheduled by clicking the camera icon in the same dialog box, and then click the Paste button.
6. Click the Apply all button if you want to adjust the current settings to all cameras.

7. Click the Set up holiday... button to set up holidays. This function compensates for different holidays in different countries. Click the date in the calendar you want as a holiday, and click the Add button. The selected date will be displayed in the list next to the calendar. If you want to delete a holiday, click the Delete button after selecting the date in the list. Move to other months using the arrow buttons located at the top of the calendar. You can save your changes by clicking the OK button. Selecting Cancel exits the Holiday setup dialog box without saving the changes.



Setting Up Sensors



1. Click the Sensor icon.

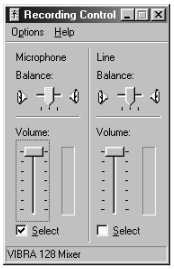
NOTE: Selecting *1-16* tab displays sensor channels to 16 and selecting *17-32* tab displays 17 to 32.

2. Move to Enable, and check the box to enable the selected sensor.
3. Move to Normally closed, and set the sensor type to Normally closed (NC) or Normally open (NO). If this box is checked, it is in the normally closed mode. If it is not checked, it is in the normally open mode.

4. Click the text field beside Description, and enter a sensor title such as "Front Door". You can use either the actual keyboard or the virtual keyboard.
5. Click the text field beside Sensor type, and enter a sensor type such as "magnet". You can use either the actual keyboard or the virtual keyboard.
6. Move to High priority, and check the box to give high priority to the target sensor so the DVR will follow the advanced camera setup when the target sensor is activated. See the Setting Up Cameras for configuring advanced camera setup.
7. Move to Record Audio, and check the box to record audio when a selected sensor is activated. Recording audio will be activated when at least one camera is associated with the sensor and the DVR is recording video. When checking the Record Audio box, click the Set up Audio... button. Select an audio input type from Microphone or Line-in, and set its balance and volume in the Recording Control dialog box. (Not available for the PDR16-RMT-RT model)

NOTE: The sound card provides two types of audio input, Microphone and Line-in. Microphone is for an unamplified source while Line-in is for an amplified source. You must manually select the type of input.

NOTE: The voltages generated by microphones are very much smaller than those used in line level devices. If you were to plug a Microphone into the soundcard Line in, you would never record anything.



8. Move to Save Image Files, and check the box to save the image as a JPG file when a selected sensor is activated. The file will be saved in the temp/RecordExt under program installation folder automatically. The Save Image files function operates regardless of the recording schedule.

NOTE: The hard disk drive for saving image files must have at least 700MB free space.

NOTE: The recording speed might decrease when the image files from multiple cameras are saved at the same time.

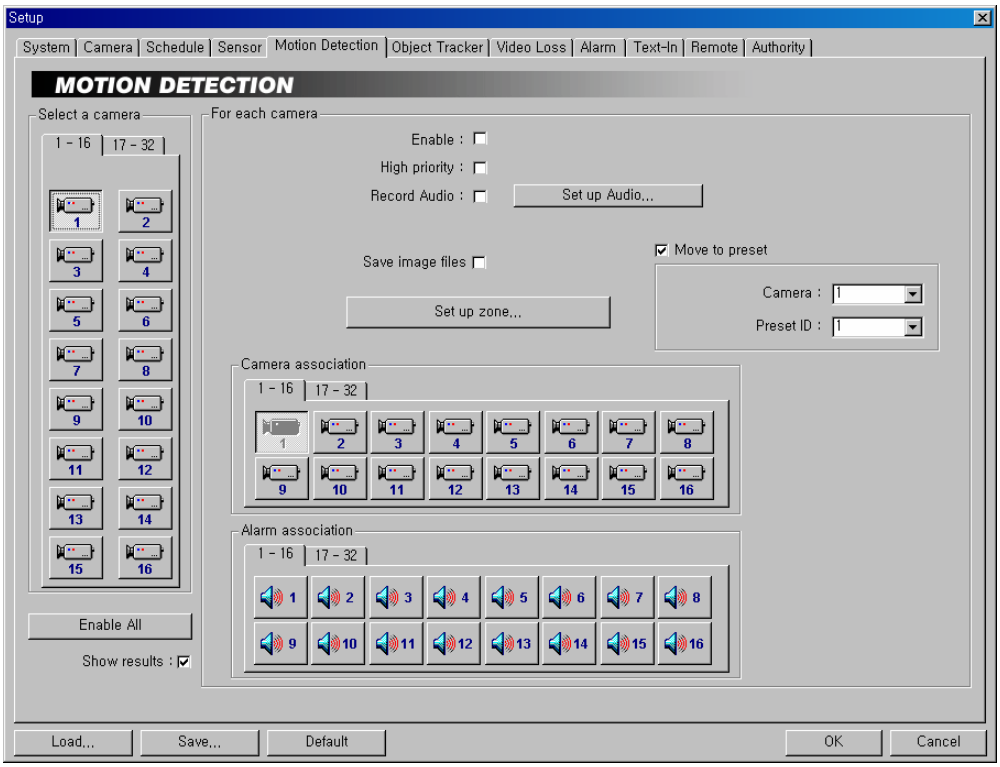
9. Move to Move to preset, and check the box to move the target camera to the preset location when a selected sensor is activated. Select the camera and preset ID from a drop-down list. Preset values can be set individually by the user who logs in the system.
10. Move to Camera association, and click the camera icon to associate it with a selected sensor. Up to 32 cameras can be selected. Video from associated camera(s) will be recorded when a related sensor is activated.

NOTE: Selecting *1-16* tab displays camera channels 1 to 16 and selecting *17-32* tab displays 17 to 32.

11. Move to Alarm association, and click the alarm icon to be associated with a selected sensor. The alarm will go off when a related sensor is activated.

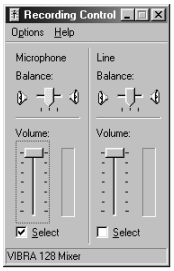
NOTE: Selecting *1-16* tab displays alarm channels 1 to 16 and selecting *17-32* tab displays 17 to 32.

Setting Up the Motion Detection



1. Click the Camera icon.
2. Move to Enable All, and click the button to enable motion detection for all cameras.
3. Move to Enable, and check the box to enable motion detection for the selected camera.
4. Move to High priority, and check the box to give high priority to the target camera. The DVR will follow the advanced camera setup when the target camera detects motion. See the Setting Up Cameras for configuring advanced camera setup.
5. Move to Record Audio, and check the box to record audio when a selected camera detects motion. Recording audio will be activated when the DVR is recording video. When checking the Record Audio box, click the Set up Audio... button. Select an audio input type from Microphone or Line-in, and set its balance and volume in the Recording Control dialog box. (Not available for the PDR16-RMT-RT model)

NOTE: The sound card provides two types of audio input, Microphone and Line-in. Microphone is for an unamplified source while Line-in is for an amplified source. You must manually select the recording input type.

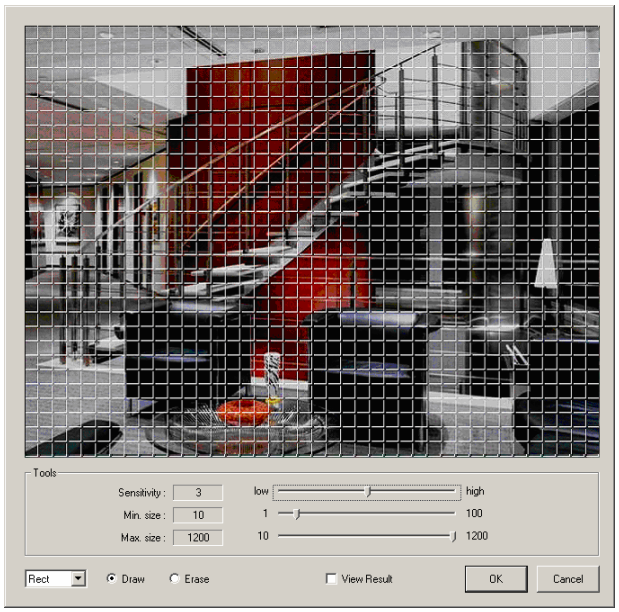


6. Move to Save Image Files, and check the box to save the image as a JPG file when a selected camera detects motion. The file will be saved in the temp/RecordExt under program installation folder automatically. The Save Image files function operates regardless of the recording schedule.

NOTE: The hard disk drive for saving image files must have at least 700MB free space.

NOTE: The recording speed might decrease when the image files from multiple cameras are saved at the same time.

7. Move to Move to preset, and check the box to move the target camera to the preset location when a selected camera detects motion. Select the camera and preset ID from a drop-down list. Preset values can be set individually by the user who logs in the system.
8. Click the Set up zone... button, and a zone setup window appears.



9. The setup screen is made up of a 40x30 grid. First, click the Draw radio button and select a tool to use from the drop-down list, and then set up the detection zone on the image. See the Setting Up Cameras – Set Privacy area section for setting up the detection zone.
10. Move to Sensitivity, and set the motion detection sensitivity (1 to 5) by holding down and dragging the pointer.

NOTE: The higher the number, the more sensitive it is.

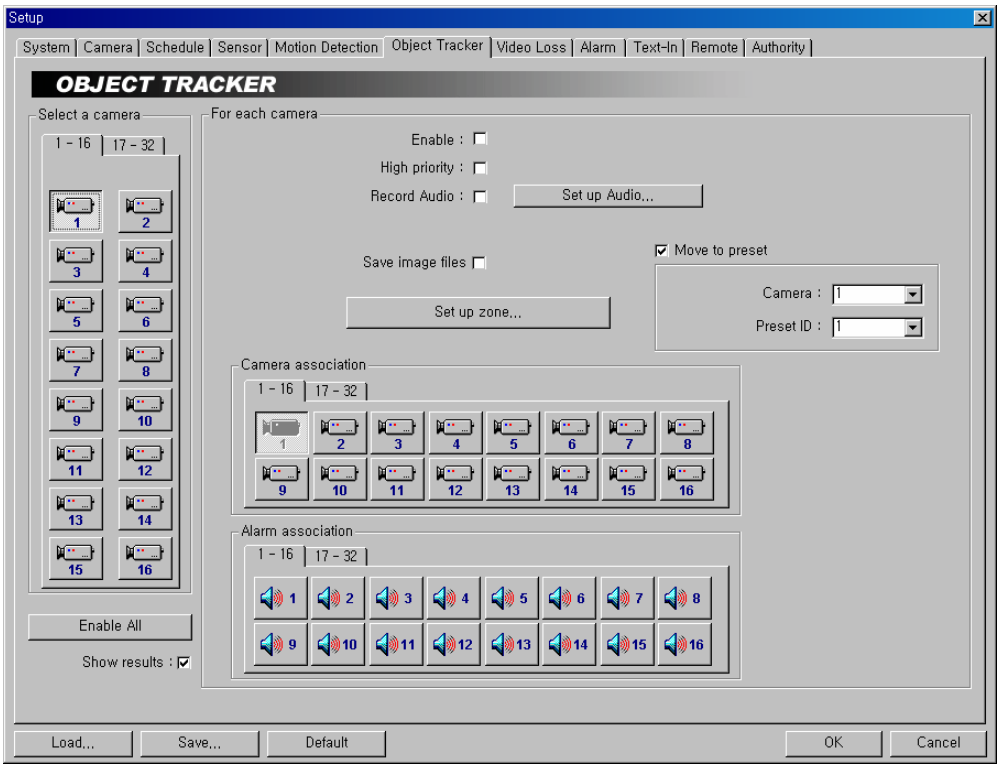
11. Move to Min. size, and set the minimum number of blocks (1 to 100). If you set the Min. size value to 10, the DVR will only react to the motion when it detects motion (activity) in at least 10 connected blocks within the selected zone established in step 9. The Min. size should not exceed the selected block numbers for detection.

NOTE: When selecting multiple detection area groups, the minimum number of blocks (Min. size) should not exceed the block numbers of the smallest detection area.

12. Move to Max. size, and set the maximum number of blocks (preset Min. size value to 1200). If you set the Max. size value to 100, the DVR will ignore the motion which exceeds the 100 blocks.
13. Move to View Result, and check the box to see detection results. You can check that sensitivity and minimum size are set correctly using this feature. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.
14. Move to Show results, and check the box to show detection results on the monitoring image.

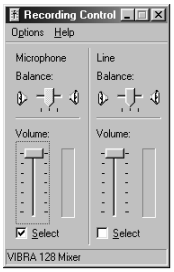
15. Move to Camera association, and click the camera icon to associate it with the camera selected step 1. If motion is detected by one camera, other cameras can be associated with it so that video will also be recorded from the associated cameras.
16. Move to Alarm association, and click the alarm icon to associate it with a selected sensor. The alarm will go off when a selected camera detect the motion.

Setting Up the Object Tracker



1. Click the Camera icon.
2. Move to Enable All, and click the button to enable Object Tracker function for all cameras.
3. Move to Enable, and check the box to enable Object Tracker function for the selected camera. If the Object Tracker is selected, the DVR will detect the changes on the image compared to the reference image during the preset dwell time.
4. Move to High priority, and check the box to give high priority to the target camera. The DVR will follow the advanced camera setup when the object tracker detects changes on the image of the selected camera. See the Setting Up Cameras for configuring advanced camera setup.
5. Move to Record Audio, and check the box to record audio when a selected camera detects changes on the image. Recording audio will be activated when the DVR is recording video. When checking the Record Audio box, click the Set up Audio... button. Select an audio input type from Microphone or Line-in, and set its balance and volume in the Recording Control dialog box. (Not available for the PDR16-RMT-RT model)

NOTE: The sound card provides two types of audio input, Microphone and Line-in. Microphone is for an unamplified source while Line-in is for an amplified source. You must manually select the recording input type.

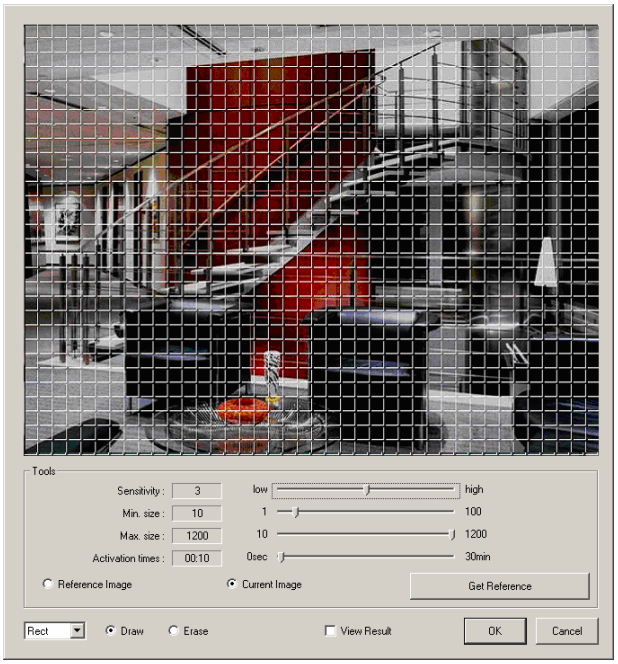


6. Move to Save Image Files, and check the box to save the image as a JPG file when the object tracker detects changes on the image of the selected camera. The file will be saved in the temp/RecordExt under program installation folder automatically. The Save Image files function operates regardless of the recording schedule.

NOTE: The hard disk drive for saving image files must have at least 700MB free space.

NOTE: The recording speed might decrease when the image files from multiple cameras are saved at the same time.

7. Move to Move to preset, and check the box to move the target camera to the preset location when the object tracker detects changes on the image of the selected camera. Select the camera and preset ID from a drop-down list. Preset values can be set individually by the user who logs in the system.
8. Click the Set up zone... button, and a zone setup window appears.



9. The setup screen is made up of a 40x30 grid. First, click the Draw radio button and select a tool to use from the drop-down list, and then set up the detection zone on the image. See the Setting Up Cameras – Set Privacy area section for setting up the detection zone.
10. Move to Sensitivity, and set the Object Tracker sensitivity (1 to 5) by holding down and dragging the pointer.

NOTE: The higher the number, the more sensitive it is.

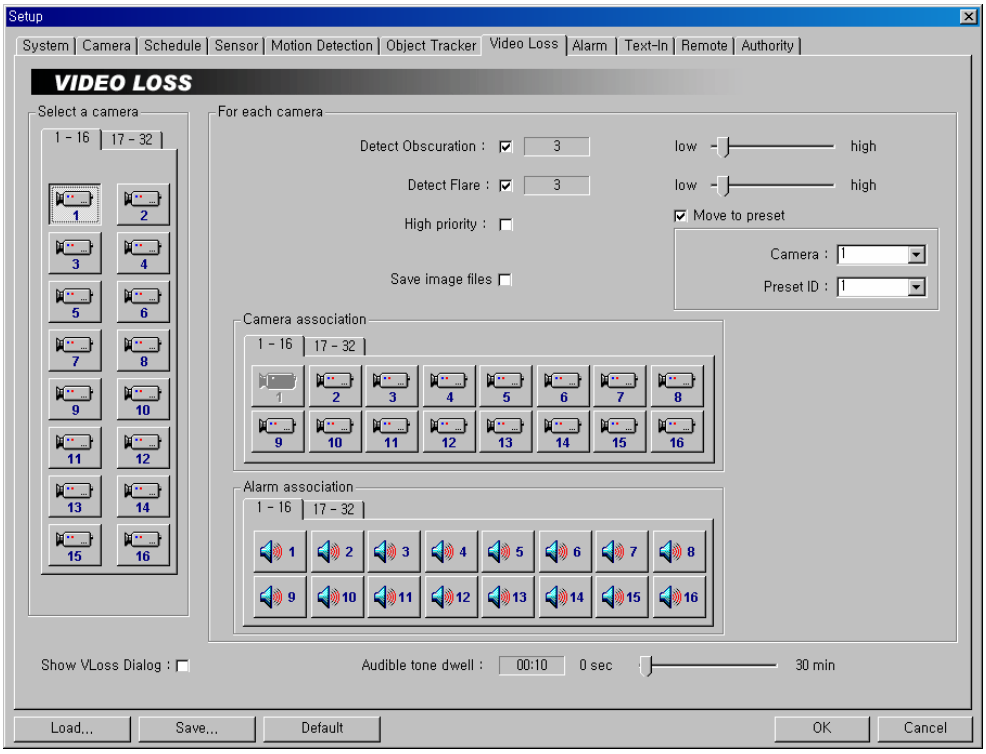
11. Move to Min. size, and set the minimum number of blocks (1 to 100). If you set the Min. size value to 10, the DVR will only react to the object when it detects changes in at least 10 connected blocks within the selected zone established in step 9. The Min. size should not exceed the selected block numbers for detection.

NOTE: When selecting multiple detection area groups, the minimum number of blocks (Min. size) should not exceed the block numbers of the smallest detection area.

12. Move to Max. size, and set the maximum number of blocks (preset Min. size value to 1200). If you set the Max. size value to 100, the DVR will ignore the object which exceeds the 100 blocks.
13. Move to Activation times, and set the dwell time to detect changes on the image from 0 to 30 minutes. The DVR will detect the change only when the change lasts over the preset dwell time.
14. Move to Reference Image, and check the box to see Reference Image.
15. Move to Current Image, and check the box to see the current image.
16. Move to Get Reference, and select the box to set the current image as the reference image.
17. Move to View Result, and check the box to see Object Tracker setting results. You can check that sensitivity and minimum size are set correctly using this feature. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.
18. Move to Show results, and check the box to show Object Tracker results on the monitoring image.
19. Move to Camera association, and click the camera icon to associate it with the camera selected step 1. Video from associated camera(s) will be recorded when the object tracker detects changes on the image of the selected camera.
20. Move to Alarm association, and click the alarm icon to associate it with a selected sensor. The alarm will go off when the object tracker detects changes on the image of the selected camera.

NOTE: Frequent changes of illumination might cause improper operation of the Object Tracker. Constant illumination will be preferred for the optimization of the Object Tracker function.

Setting Up the Video Loss

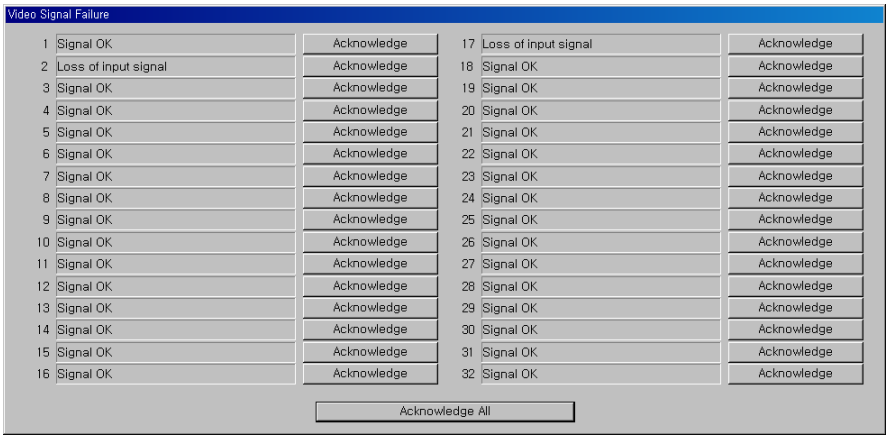


1. Click the Camera icon.
2. Move to Detect Obscuration, and check the box to use the obscuration detection. And then set the obscuration level from 0% to 50% by holding down and dragging the pointer. The higher the percentage, the more sensitive it is. If the obscuration detection is selected, the DVR will check the brightness of the target camera, and consider the obscuration on the images as video loss.
3. Move to Detect Flare, and check the box to use the flare detection. And then set the flare level from 0% to 50% by holding down and dragging the pointer. If the flare detection is selected, the DVR will check the brightness of the target camera, and consider the flare on the image as video loss.
4. Move to High priority, and check the box to give high priority to the target camera. The DVR will follow the advanced camera setup when the target camera detects video loss. See the Setting Up Cameras for configuring advanced camera setup.
5. Move to Save Image Files, and check the box to save the image as a JPG file when a selected camera has lost video loss. The file will be saved in the temp/RecordExt under program installation folder automatically. The Save Image files function operates regardless of the recording schedule.

NOTE: The hard disk drive for saving image files must have at least 700MB free space.

NOTE: The recording speed might decrease when the image files from multiple cameras are saved at the same time.

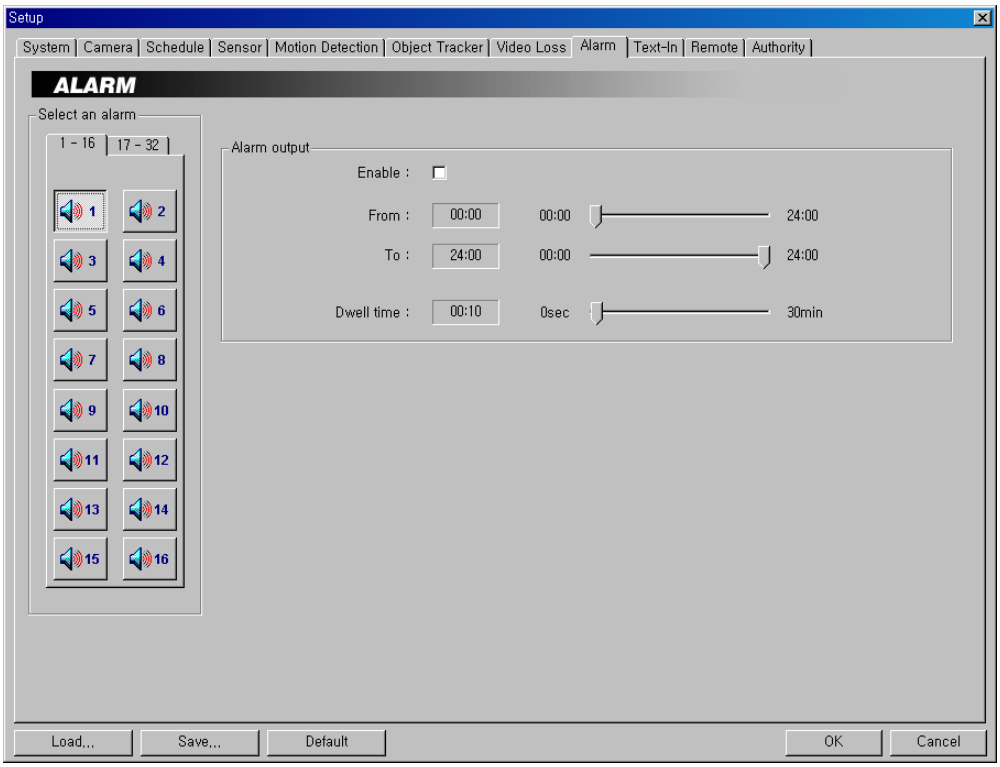
6. Move to Move to preset, and check the box to move the target camera to the preset location when a selected camera has lost video. Select the camera and preset ID from a drop-down list. Preset values can be set individually by the user who logs in the system.
7. Move to Camera association, and click the camera icon to associate it with the camera selected step 1. If video loss is detected by one camera, other cameras can be associated with it so that video will also be recorded from the associated cameras.
8. Move to Alarm association, and click the alarm icon to associate it with a selected sensor. The alarm will go off when an associated sensor is activated.
9. Move to Show video loss dialog, and check the box if you want to show the following Video Signal Failure dialog box on the screen when the video loss is detected. Click the Acknowledge or Acknowledge All button to close the dialog box.


Video Signal Failure
1 Signal OK Acknowledge
2 Loss of input signal Acknowledge
3 Signal OK Acknowledge
4 Signal OK Acknowledge
5 Signal OK Acknowledge
6 Signal OK Acknowledge
7 Signal OK Acknowledge
8 Signal OK Acknowledge
9 Signal OK Acknowledge
10 Signal OK Acknowledge
11 Signal OK Acknowledge
12 Signal OK Acknowledge
13 Signal OK Acknowledge
14 Signal OK Acknowledge
15 Signal OK Acknowledge
16 Signal OK Acknowledge
17 Loss of input signal Acknowledge
18 Signal OK Acknowledge
19 Signal OK Acknowledge
20 Signal OK Acknowledge
21 Signal OK Acknowledge
22 Signal OK Acknowledge
23 Signal OK Acknowledge
24 Signal OK Acknowledge
25 Signal OK Acknowledge
26 Signal OK Acknowledge
27 Signal OK Acknowledge
28 Signal OK Acknowledge
29 Signal OK Acknowledge
30 Signal OK Acknowledge
31 Signal OK Acknowledge
32 Signal OK Acknowledge
Acknowledge All

10. Move to Audible tone dwell, and set the dwell time of alarm output. The alarm output will be activated during the preset dwell time when the video loss is detected.

NOTE: The alarm output can be reset during alarm activation only by clicking the *Acknowledge* or *Acknowledge All* button in the *Video Signal Failure* dialog box.

Setting Up the Alarm



1. Click the Alarm icon.

NOTE: Selecting *1-16* tab displays alarm channels to 16 and selecting *17-32* tab displays 17 to 32.

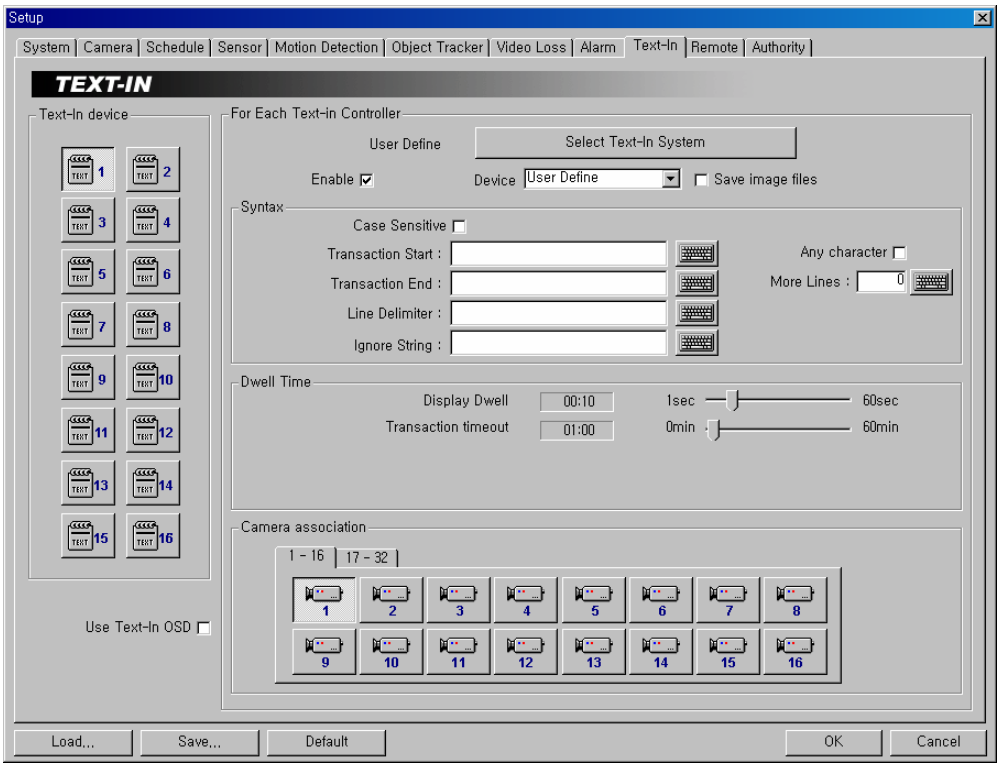
2. Move to Enable, and check the box to enable the selected alarm.
3. Move to From and To, and set the beginning and ending time (00:00 to 24:00) of alarm activation by holding down and dragging the pointer.

NOTE: In cases where the *From* hour is later than the *To* hour, the alarm will be activated at the *From* time of the current date until next day's *To* time. If you set *To: 08:00* and *From: 18:00,* this means the alarm will be active over night from 6:00 p.m. until 8:00 a.m. the following day.

4. Move to Dwell time, and set the alarm output duration (0 seconds to 30 minutes) by holding down and dragging the pointer.

NOTE: 16-channel alarm outputs are provided for the PDR16-RMT-LIVE series and PDR16-RMT-RT models, and 32-channel alarm outputs are provided for the PDR32-RMT-X model..

Setting Up the Text-In



1. Click the Text-in device icon .

NOTE: Up to 16 text-in channels are available using the WIBU key.

2. Move to Enable, and check the box to enable to use the selected text input device.
3. Move to Use Text-In OSD, and check the box if you want to display text-in information on the image.
4. Click the Select Text-In System button to set up the text-in device. Select the model of installed text-in system from the Text-In Model list, and the COM port to use from the drop-down list. Click the Set up port… button to display the Set up COM Port dialog box. Set the Baud rate from 300 to 256,000, select the Parity from None, Even or Odd parity, select the Data bit from 7 bit or 8 bit format, select the Stop bit from 1 bit or 2 bits from the drop-down list. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.
5. Move to Device, and select the type of text-in device to use.

NOTE: Each type of text-in device (User Define, GnomeII and so on) has different setup options which can be defined by the user.

6. Move to Save Image Files, and check the box to save the image as a JPG file when a selected text-in device receives text-in data. The file will be saved in the temp/RecordExt under program installation folder automatically. The Save Image files function operates regardless of the recording schedule.

NOTE: The hard disk drive for saving image files must have at least 700MB free space.

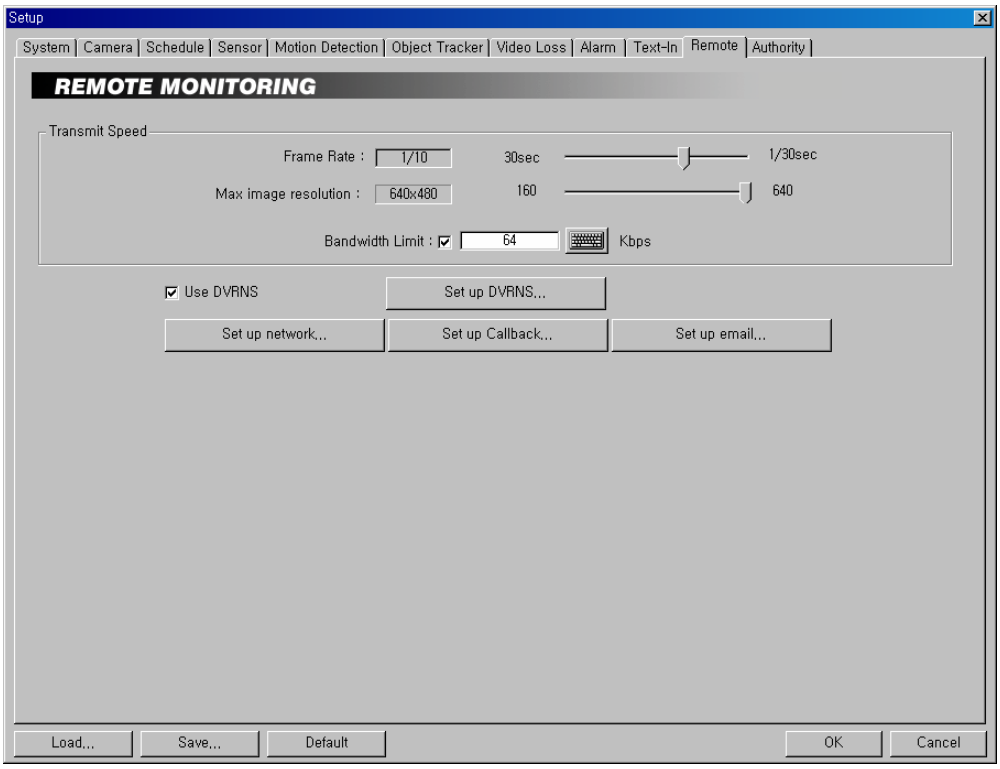
NOTE: The recording speed might decrease when the image files from multiple cameras are saved at the same time.

7. Move to Case Sensitive, and check the box to distinguish between capital letters and small letters from text-in data.
8. Move to Transaction Start, and enter the character string to be considered as transaction start. If the Any character box is checked, preset any character will be considered as transaction start.
9. Move to Transaction End, and enter the character string to be considered as transaction end.

NOTE: Entering multiple keywords for *Transaction Start / End* are supported. Use a semi-colon (;) to delimit each keyword. When the semi-colon is included in *Transaction Start / End* itself, use a double semi-colon (;;).

10. Move to More Lines, and set the line count after preset character string for transaction end. The DVR will include preset line count in one transaction.
11. Move to Line Delimiter, and enter the character string that divides each text-in line.
12. Move to Ignore String, and enter the character string. The DVR will ignore the text-in line including the string which is set in this field.
13. Move to Display Dwell, and set the dwell time to display the text-in information by holding down and dragging the pointer.
14. Move to Transaction Timeout, and set the duration to wait for a new text input. The DVR will consider the transaction is ended if there is no text input during preset timeout after the last text input.
15. Move to Camera association, and click the camera icon to be associated with a selected text-in device. Multiple cameras can be selected. The text-in information will be displayed on the screen when the associated camera is displayed in the single-screen mode.

Setting Up the Remote Access



1. Move to Transmit speed, and set the Frame Rate and Max image resolution by holding down and dragging the pointer.

NOTE: The transmit speed is the number of images that can be transmitted for each camera. Therefore the lower the value, the more images are transferred during the same time. For example, when using one camera, the value *30* means one image per 30 seconds will be transmitted. *1* means one image per second, and *1/30* means that 30 images per second. The maximum transmit speed users can expect over a LAN is 480 images per second. This means that if you have four cameras, they can all be set at 1/30 (30 images per second), and you will not exceed the system's capability. However, even if the total image rate settings for all cameras exceed 480 images per second, the DVR cannot transmit more than 480 images per second. When this happens, the cameras will share the 480 images per second capacity.

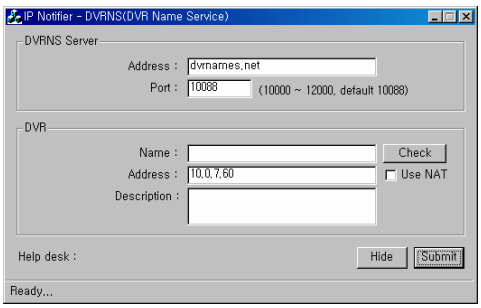
NOTE: Maximum transmit speed users can expect over a LAN is 480 images per second, and average transmit speed over PSTN is 1 to 2 images per second.

NOTE: If the VGA card of a BASE system does not support the overlay function, the transmit speed can slow down somewhat.

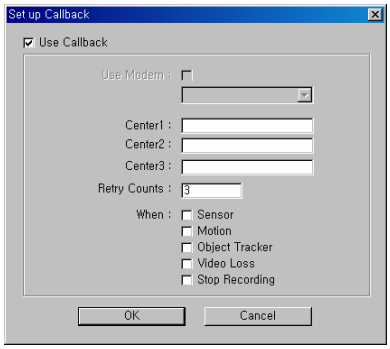
NOTE: The DVR will convert the image resolution according to setting values of *Max image resolution* when transmitting the image with the higher resolution than preset resolution. If you set *320x240* (*352x240(288)* for PDR16-RMT-RT model) for *the Max image resolution*, the image with *640x480* (*704x480 (704x576 PAL)* for PDR16-RMT- RT model) resolution will be converted to the one with *320x240* (*352x240(288)* for PDR16-RMT-RT model) before transmitting to the remote site.

2. Move to Bandwidth Limit, and check the box to control the network bandwidth. And then enter the bandwidth limit (kbps) using either actual keyboard or the virtual keyboard.
3. Move to Use DVRNS, and check the box to use DVRNS (DVR Name Service) server. Click the Set up DVRNS… button displays the IP Notifier – DVRNS (DVR Name Service) dialog box allowing you to set details about DVRNS.

NOTE: The DVRNS registration is limited to only one DVRNS server. The DVR cannot be registered to multiple DVRNS servers.



4. Move to DVRNS Server, and enter the IP address (or domain name) and port number of the DVRNS server.
5. Move to DVR, and enter the unit name to be registered on the DVRNS server and enter the DVR Description. Clicking the Check button next to the Name box allows you to check if the name you entered can be used. The Address displays the IP address of the DVR. When using the NAT (Network Address Translation) device, check the Use NAT box.
6. You can save your changes, register the DVR information on the DVRNS server by clicking the Change button, and hide the IP Notifier – DVRNS (DVR Name Service) dialog box by clicking the Hide button.
7. Click the Set up network... button, and set up the network. See Appendix 3 – Network Setup (LAN) or Appendix 4 – Network Setup (Modem) for details.
8. Click the Set up Callback… button, and set up the callback function. The DVR can be set up to notify the target server running the SmartBase when certain events occur.



9. Move to Use Callback, and check the box to enable the callback function.

NOTE: When using the callback function with modem connections, check the *Use Modem* box and then select the installed modem to use. Also, the dial-up server should be running on the target server to be notified. See *Appendix 4 – Network Sestup (Modem)* for details.

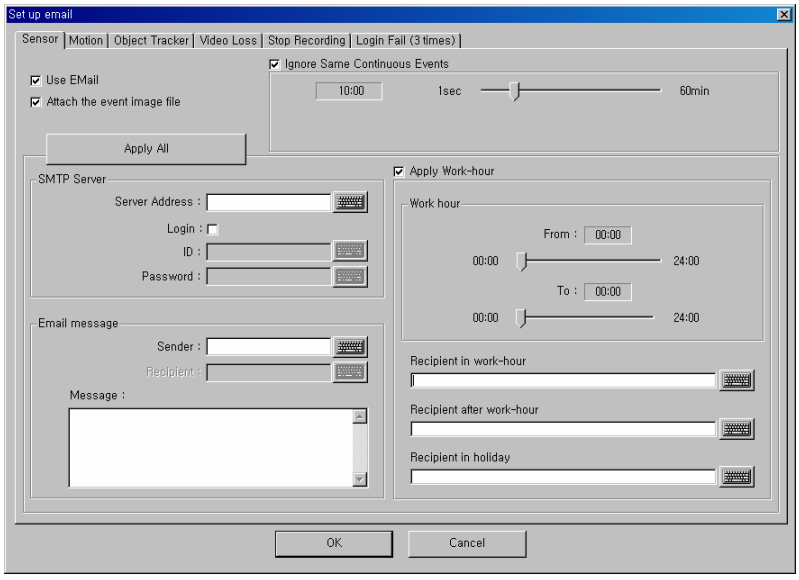
10. Move to Center, and enter the IP address of each server. A maximum of three servers can be set.

NOTE: When selecting the *Use Modem*, enter the telephone number of the target server instead of the IP address.

11. Move to Retry Counts, and enter the number of times you would like the DVR to try contacting the server if the connection fails.
12. Move to When, and select the target event. The DVR will call when the selected events occur. Multiple selections are available. You can save your changes by clicking the OK button. Selecting Cancel exits the Set up Callback dialog box without saving the changes.

NOTE: Callback messages will be displayed on the system status window of the target server. They include event type, event detection time, and system location entered during the *System* setup.

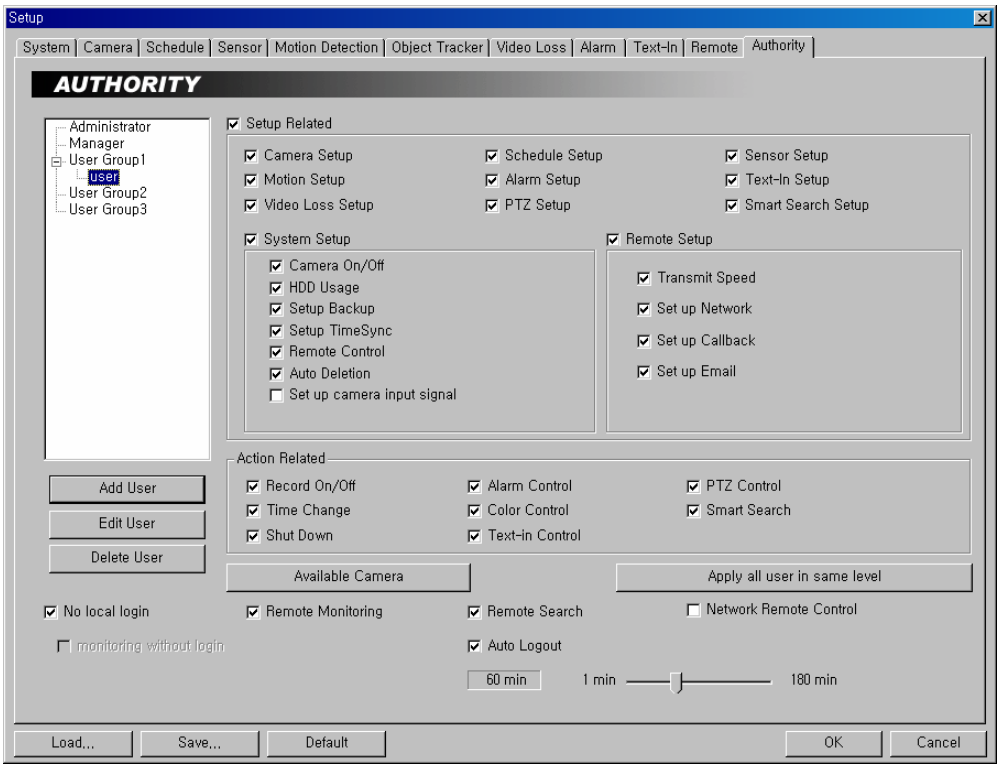
13. Click the Set up Email…, and set up the e-mail notification. Each event can be set individually for e-mail notification. Select the Event tab to set up.



14. Move to Use Email, and check the box to enable e-mail notification function.
15. Move to Attach the event image file, and check the box to attach the event detected image file when emailing.
16. Move to Ignore Same Continuous Events, and check the box set the dwell time if you want to send an e-mail for the first detected event and ignore same continuous events during the preset dwell time.
17. Click the Apply All button to set all events with the same configuration.
18. Move to SMTP Server, and click the text field beside Server Address. And then enter an SMTP server IP address.
19. Move to Login, and check the box if you want to connect the SMPS server and so login is required. And click the text field beside ID and Password then enter the ID and password for login.
20. Move to Email message, and click the text field beside Sender. And then enter a sender's e-mail address. Click the text field beside Recipient, and enter a recipient's e-mail address. Click the text field under Message, and type in the e-mail message.
21. Move to Apply Work-hour, and check the box and set the start and end time of working hours by holding down and dragging the pointer. Selecting Apply Work-hour enables you to send an e-mail if you want to send an e-mail to the different recipient in working hours, after working hours and in holidays.
22. Move to Recipient in work hour / after work-hour / in holiday, and enter a recipient's e-mail address in each text field.

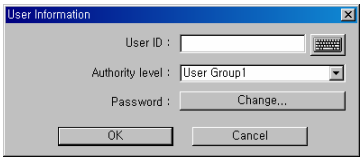
NOTE: If you want to send the e-mail to multiple recipients, enter a ***","*** or ***";"*** between e-mail addresses in the *Recipient* box.

Setting Up the Authority



1. Click the Add User button, and the User Information dialog box appears. Set up the user information to register a new user.

NOTE: Up to 256 users can be registered.

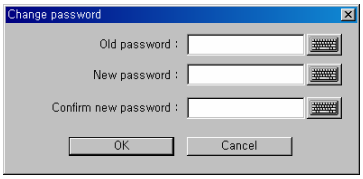


2. Click the text field beside User ID, and enter the user ID using either the actual keyboard or the virtual keyboard.
3. Move to Authority level, and select the authority level from a drop-down list: User Group (1-3), Manager, or Administrator.

NOTE: Only the administrator level user can edit the user's information and their authority setup.

NOTE: The authority setup of the Administrator cannot be edited.

4. Click the Change... button beside Password, and the Change password dialog box appears. Set up the password for a newly registered user.



5. Click the text field beside New password and Confirm new password, and enter the password using either the actual keyboard or the virtual keyboard. The Old password may not be used when entering a password for a newly registered user. After you have set up the password, you can save your settings by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

NOTE: Up to eight characters may be used for a password.

NOTE: The password will not be saved when *New password* and *Confirm new password* do not match.

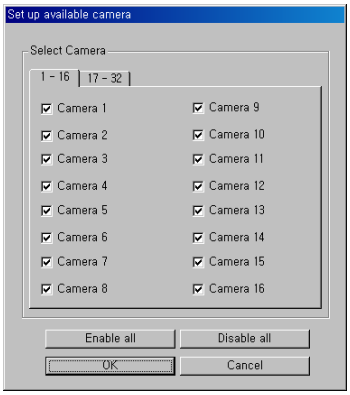
6. After you have set up the user information, you can save your settings by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.
7. Click the Edit User button to edit the established user information. If you want to delete the user, click the Delete User button after selecting the user to delete in the list.

NOTE: The password will not be changed when the *Old password* does not match, or the *New password* and *Confirm new password* do not match.

8. Select a registered user in the list, and check the desirable option boxes to set the user's authorization.

NOTE: For the remote access from the BASE system, the *Remote Monitoring* option should be selected for the user's authorization. And, select the *Remote Search* if you want to review recorded video on the POST system, and select the *Network Remote Control* if you want to control the DVR remotely via network connections using the network keyboard or RAS mobile program..

9. Click the Available Camera button if you want to assign the camera number individually to each user. Check the box beside the camera number to enable the user to monitor and review that camera image. Clicking the Enable all or Disable all button enables or disables all the cameras to the target user. Click the Apply all user in same level button if you want to adjust the current authority settings to all users in the same authority level.



10. Move to No local login, and check the box if you do not want the login procedure. Otherwise, the User Login dialog box will appear when clicking any function button and asks entering User ID and Password.
11. Move to Monitoring without login, and check the box if you want to monitor the image without login procedure.
12. Move to Auto Logout, and check the box then set the logout dwell time (from 1 to 180 minutes) if you want to log out the DVR automatically when there is no keyboard or mouse operation during the preset dwell time.

SmartSearch

Overview

SmartSearch is a powerful tool for SmartGuard. It features playback and search functions for recorded data and consists of Playback Window, Timetable, Status Window and Utility Buttons. Each area displays or controls recorded information. Click the Search button in the SmartGuard mode to get into the SmartSearch mode. To return to the SmartGuard mode, click the Close button on the remote control in the SmartSearch mode.

NOTE: The playback speed can be slow when the DVR is recording images at its maximum recording speed. For the normal playback speed, stop recording by clicking the *Rec* button in the SmartGuard mode.

Features

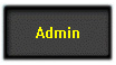
- Searches by camera and time
- Provides recording status table
- Various search functions
- Zoom in/out function
- Image enhancement functions
- Print function
- Remote playback function
- Bookmark function
- Saves to AVI file
- Audio playback

Main GUI

Playback Window

Displays the current playback image.

Login Information



Displays who logs in the system.

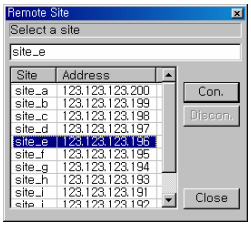
Clock

Displays the date and time of the current playback image.

Utility Buttons

Data Loading – Local: Click the button to load recorded data from the local hard disk drive.

Data Loading – Remote: Click the button to load recorded data from the remote DVR via a modem or LAN. The following Remote Site dialog box appears, and the remote site(s) you registered for remote monitoring is (are) displayed in the list box.



- Connecting a remote site…
  Click the site where you want to connect in the list box, and then click the Con. button.
  Double click the site where you want to connect in the list box.
  Or, hit the enter key after entering the site name or address in the text field located under Select a site. (Quick Search)
- Disconnecting a remote site…
  Click the site where you want to disconnect in the list box, and then click the Discon. button.

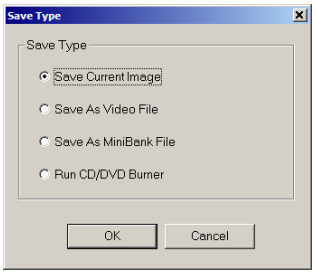
NOTE: If you want to arrange the site list in the descending orders, click the *Site* or *Address* headings on the list box.

NOTE: The DVR can only view recorded, not live video on another DVR.

Data Loading – Backup: Click the button to load backup data from the extra backup device (e.g. DVD-RAM, CD-R(W), USB hard disk drive).

Setup: Click the button to set up the SmartSearch. See the SmartSearch Environment Setup section.

SAVE: Click the button to save recorded video.



- Save Current Image: Saves the current image as a bitmap or JPEG file to the local hard disk drive or floppy disk.

NOTE: When you save the current image as a bitmap file (*.bmp file format only) the watermark will be included on the image, so you can check whether the saved image has been forged using the *SmartWatermark* (watermark viewer program).

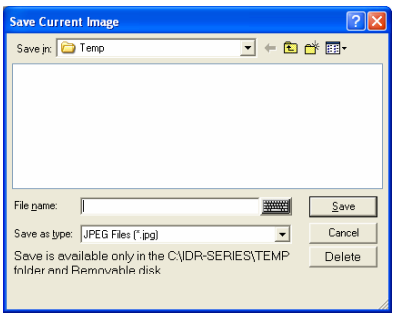
- Save As Video File: Saves any video clip as an AVI file.
- Save As MiniBank File: Saves any video clip as an ".exe" file.
- Run CD/DVD Burner: Saves the recorded data on the CD or DVD drive using the CD/DVD burning program.

NOTE: CD/DVD burning might not be successful if the SmartGuard is recording video during CD/DVD burning. Please stop recording for safe CD/DVD burning.

NOTE: The image and video clip can be saved only under the "*C:\IDR-Series\temp*" directory, on the removable disk including floppy disk and CD-RW, or on the hard disk drive with no IBank was created such as external hard disk drives.

Save Current Image

1. Click the Save Current Image radio button in the Save Type dialog box, and click the OK button.



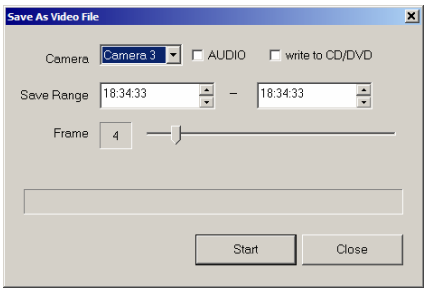
2. Move to Save in, and select the save location from the drop-down list.
3. Move to File name, and enter the file name using either the actual keyboard or the virtual keyboard.
4. Move to Save as type, and select the file format from the drop-down list. The available formats are bitmap and JPEG files.

5. Click the Save button to save the current image. Selecting Cancel cancels the saving operation and closes the dialog box without saving the settings.

NOTE: If you want to delete the file or folder, select the target file or folder then click the *Delete* button. You can delete the file or folder only saved under the "*C:\IDR-Series\temp*" directory.

Save As Video File

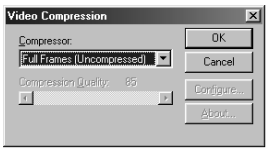
1. Click the Save As Video File radio button in the Save Type dialog box, and click the OK button.



2. Move to Camera, and select the camera number to save from the drop-down list.
3. Move to AUDIO, and check the box to save audio with video.
4. Move to write to CD/DVD, and check the box if you want to save the video clip on the CD or DVD drive directly.

NOTE: Writing on the DVD is available only on the Windows XP embedded version over 2.0.

5. Move to Save Range, and set the range using the arrow buttons.
6. Move to Frame, and set the frame rate by holding down and dragging the pointer. You can set the frame from 1 to 30. When the AUDIO box is checked, you cannot set the frame rate. It will be fixed at 30 frames in order to synchronize the video and audio.
7. Click the Start button to display the Save As dialog box. Selecting Close cancels the saving operation and closes the dialog box. When the write to CD/DVD box is checked, the Enter file name dialog box appears, and you need to select the CD recorder to use, and select the folder name to save on the CD or DVD drive by clicking the -> button.
8. In the Save As dialog box, select the save location from the drop-down list in the Save in, and enter the file name in the File name box using either the actual keyboard or the virtual keyboard. Click the Save button to save the settings and display the Video Compression dialog box. Selecting Cancel closes the dialog box without saving the settings and returns to the Save As Video File dialog box.



9. Move to Compressor, and select the compressor to use from the drop-down list.

NOTE: Depending on the DVR, there are many different compressors available. If you select *Full Frames (Uncompressed)*, the AVI file size may be large but the image quality will be good.

10. Click the OK button to return to the Save As Video File dialog box and start saving the video clip with established parameters. Selecting Close returns to the Save As Video File dialog box without saving the settings.

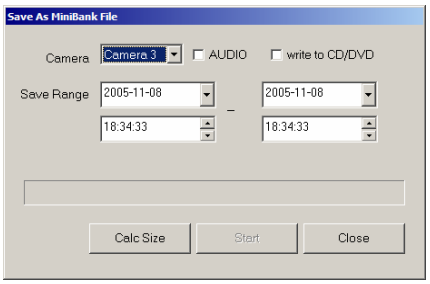
NOTE: The *Configure...* button for configuring a selected compressor and the *About...* button displaying the compressor information might be inactive depending on the selected compressor.

11. In the Save As Video File dialog box, click the Start button to save the video. Selecting Cancel cancels the saving operation and closes the dialog box without saving the settings.

NOTE: The target disk for saving AVI files must have at least 150 MBytes free space.

MiniBank Save

1. Click the MiniBank Save radio button in the Save Type dialog box, and click the OK button.



2. Move to Camera, and select the camera number to save from the drop-down list.
3. Move to AUDIO, and check the box to save audio with video.
4. Move to write to CD/DVD, and check the box if you want to save the video clip on the CD or DVD drive directly.

NOTE: Writing on the DVD is available only on the Windows XP embedded version over 2.0.

5. Move to Save Range, and set the saving range using the arrow buttons.
6. Click the Calc Size button to calculate and preview the backup file size you are saving.
7. Click the Start button to display the Save As dialog box. Selecting Cancel cancels the saving operation and closes the dialog box without saving the settings. When the write to CD/DVD box is checked, the Enter file name dialog box appears, and you need to select the CD recorder to use, and select the folder name to save on the CD or DVD drive by clicking the > button.
8. In the Save As dialog box, select the save location from the drop-down list. In Save in, enter the file name using either the actual keyboard or the virtual keyboard in the File name.

NOTE: When you creating the file name for the video you are saving, you must enter "/" between the directory name and file name. For example, if you enter "abank/test", a directory named "abank" with an '.exe' file named "test.exe" will be created.

9. Click the Save button to save the video, Selecting Cancel returns to the MiniBank Save dialog box without saving the settings.

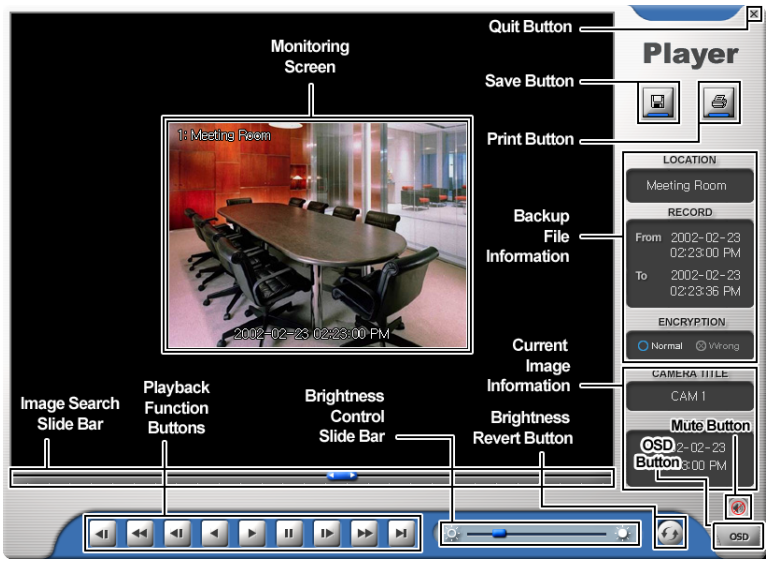
NOTE: When saving a minibank file on a floppy disk or zip disk, it can be saved on multiple disks if the file size is larger than the disk capacity. Split files can be merged using the provided MiniBank Wizard. Double clicking the *MiniBankWizard.exe* file starts the MiniBank Wizard. Move to the *File Merge* tab in the MiniBank Wizard dialog box, and select the folder where the split files are located. The first file among split files will be displayed in the box next to the Folder. Click the displayed file and then click the *Merge Files* button. Double clicking the merged file starts the *Player* program.

NOTE: See the following *MiniBank Self Player* section for the reviewing the saved MiniBank video.

MiniBank Self Player

You do not need to install any special software on your PC to review the MiniBank video since each MiniBank file contains the self player program. Double click the target file to start the Player program.

NOTE: It is suggested that the computer used for the Player program has at least an 800MHz Pentium III. If your CPU is slower than this, minibank files recorded at maximum speed with very high image quality will be played back slowly.

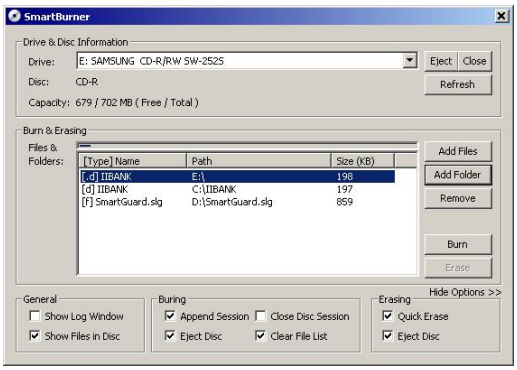


- The Monitoring Screen displays the backed up images. Click the right mouse button on the image to zoom in and click the right mouse button while holding the Ctrl key to zoom out. Scrolling the mouse wheel up or down on the image also zooms in or out. Clicking the right mouse button on the image while holding the Shift key switches the screen size. Click and hold the left mouse button and drag the image to move its position.
- Click the Save Button to save the current image in a bitmap file format to the local hard disk drive or floppy disk.
- Click the Print Button to print the current image on the printer connected to your computer.
- The Backup File Information window displays information regarding the backup file. Location displays the site description of the DVR where the backup was made. Record displays the time span of the video backup file. Encryption displays whether the backup file has been tampered with. Normal means the file has not been tampered with, Wrong means the system has detected tampering, and no mark means the user cancelled the encryption check.
- The Current Image Information window displays information about the current image. Camera Title displays the camera name of the current image, and Time displays the date and time the image was recorded.
- The Playback Function Buttons include fast backward, backward, play, pause, fast forward, go to the first image, go to the previous image, go to the next image, and go to the last image buttons.
- The Image Search Slide Bar displays the current playback position. The user can move the playback position by clicking the mouse and dragging along the slide bar.
- The Brightness Revert Button reloads to the original image.
- The Brightness Control Slide Bar adjusts the brightness of the backup images by clicking the mouse and dragging along the slider bar. Minute brightness changes can be made by using the arrow buttons located at each end of the bar.
- Clicking the OSD (On-Screen Display) Button switches the OSD option. The OSD information includes camera location and date/time.
- Clicking the Mute Button (speaker icon) mutes the recorded audio.
- Clicking the Quit Button exits the Player program.
- Double clicking the Player logo at the top right corner while holding the Shift key switches video formats when you are experiencing improper image display.

Run CD/DVD Burner

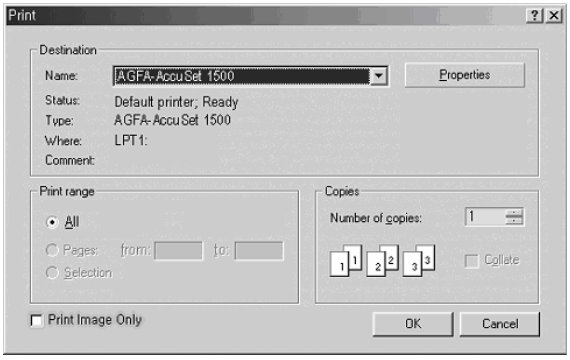
Click the Run CD/DVD Burner radio button to initiate the CD/DVD burning program.

NOTE: The CD/DVD burning program will be selected during the SmartSearch Environment Setup.



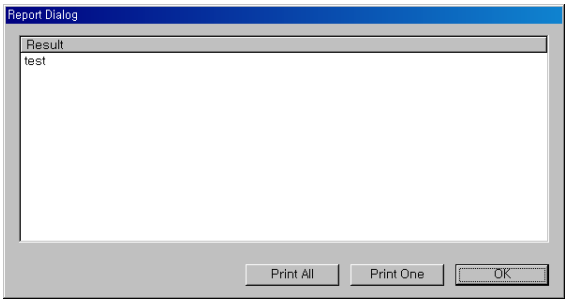
- Drive & Disc Information: Select the CD or DVD recorder to use. Click the Eject button if you want to eject the media from the drive, and click the Close button if you want to close the drive door. Clicking the Refresh button updates the list of connected recorder. Disc displays the disc information, and Capacity displays the disc capacity.
- Burn & Erasing: Select the video files or folders to save after clicking the Add Files or Add Folder. Selected files or folders will be displayed on the list. Clicking the Remove button deletes the selected files or folders. The capacity bar above the list shows the data capacity. After selecting the files or folders to save, click the Burn button. Click the Erase button to erase all data on the disc.
- Options: Select options to set up options required.
  General – Check the box beside Show Log Window to display the log list of the program, and check the box beside Show Files in Disc to display files or folders saved on the selected disk.
  Burning – Check the box beside Append Session to save the new data subsequently following the previous data session, and check the box beside Close Disc Session to complete the burning. Checking the box beside Clear File List does not display the file or folder list.
  Erasing– Check the box beside Quick Erase to erase selected files more quickly, and check the box beside Eject Disc to eject the disk automatically after completing burning or erasing.

Print: Click the button to print the current image.



1. Move to Name, and select an installed printer to use from the drop-down list.
2. Do not change the setting for the Print range.
3. Move to Copies, and set the number of copies using arrow buttons.
4. Move to Print Image Only, and check the box if you want to print the image without text information.
5. Click the OK button to print the current image. Selecting Cancel cancels printing operations and closes the dialog box without saving the settings.

POS: Click the POS button to display the POS Report Dialog window showing the ATQ (Automatic Transaction Query) results. All or single reported transaction can be printed. The selected transaction result image from ATQ will be displayed automatically. When using the text inserter by TVS, clicking the button displays the CYA query dialog box.



Text-In: Displays the text-in information. To remove the information, click the icon again.

Screen Buttons

Screen Mode: Every time this icon is clicked, the screen mode switches (single-screen → quad → 3x3 → 4x4). For multi-screen playback, select a camera button from the timetable, and select a desired screen mode by clicking the Screen Mode button. Then click any playback-related button.

Full Screen: Display the recorded images in full-screen mode by clicking the Full Screen button during playback. To exit from full-screen mode, click the left mouse button anywhere on the screen.

Image Adjust

- Zoom: Enlarges or shrinks the current image. To enlarge the image, click +. To shrink the image, click −. This button works only in the single-screen mode. You can also enlarge or shrink the image by rolling the mouse wheel on the image.
- Brightness: Changes the brightness of the current image. Click + to make the image brighter, click − to make the image darker and click ☼ to set the brightness to the default setting.

NOTE: Make certain that the cameras and monitor are adjusted properly before recording because this adjustment should not be used to correct improperly recorded video.

- Blur: Click the Blur button to blur the image to reduce noise.
- Sharp: Click the Sharp button to sharpen an image.
- Undo: Click the Undo button to cancel the last image processing operation.
- Equalize: Click the Equalize button to equalize the image brightness to make it more natural.
- Stretch: Click the Stretch button to stretch the image brightness to get more contrasted image.
- Revert: Click the Revert button to cancel the image processing operation and reload the original image

Playback Control Buttons

There are 10 playback control buttons.

- SKIP: Sets the image number to be skipped by holding down and dragging the pointer while the DVR is in the Fast Forward or Fast Backward playback mode.
- DELAY: Sets the delay time for each image playback by holding down and dragging the pointer while the DVR is in the Fast Forward or Fast Backward playback mode.

NOTE: In the full-screen mode, the following *Floating Playback Panel* window will appear with right mouse button clicking. The window can be moved at any place on the screen by dragging the mouse.

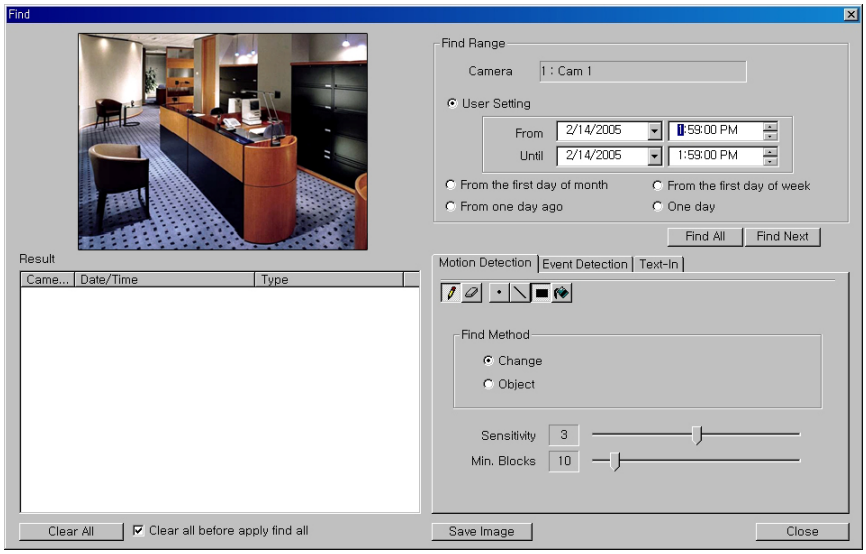
NOTE: The *Find* button will be disabled in the *Floating Play Panel* window.

Find

Click the Find button from the playback buttons to find images of motion detection, event detection, and text-in.

NOTE: Find function for the text-in is available only in the Text-In version.

Finding Motion Detection



1. Move to Find Range to set the find parameters.
   - user setting: Finds event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
   - from first day of month: Finds event logs from the first day of this month.
   - from first day of week: Finds event logs from the first day of this week.
   - from one day ago: Finds event logs from one day ago.
   - one day: Finds event logs for one day.
2. Click the Motion Detection tab.
3. Set up the detection zone using the area setup icons. First, select the Draw mode and then select one of four tools by clicking the target icon. Move the cursor on the image of the selected camera displayed in a small window, and set up the detection area using the selected tool. Use the tools as follows:
   Point — Place the cursor on the image and click the left mouse button. A single box appears where the cursor is.
   Line — This tool can be used to draw irregular shapes. Place the cursor where you want to start the line. Hold down the left mouse button and drag the cursor to where you want the end of the line. Release the mouse button and a group of boxes appears along the line you drew. You can draw lines around shapes by repeating this process.
   Rectangle — Hold down the left mouse button and drag the cursor in any direction. A rectangle appears. Once the rectangle is the size you want, release the mouse button and the rectangle fills with boxes.
   Fill — When using the fill tool, clicking the mouse will fill that area of the image with boxes. If a shape has been drawn with the line tool, clicking inside will fill the area with boxes. Clicking outside the area will fill the outer area with boxes. If no shapes have been drawn, the entire screen will fill with boxes.

NOTE: When you select the *Erase* mode, you can use the tools as described above to delete boxes.

4. Move to Find Method, and select either Change or Object.

NOTE: *Change* will detect changes in a scene which is usually motion. For example, if you want to detect if anyone passes through a door, you can draw a *change* detection around the door. The system will search through recorded data for any motion in the doorway. *Object* can be used to detect when an object is removed or moved in an area where there is normally motion. For example, you can draw a box around a painting hanging in a hallway. People walking by the painting will not be listed as an event. However, if the painting is removed, this will be listed as an event.

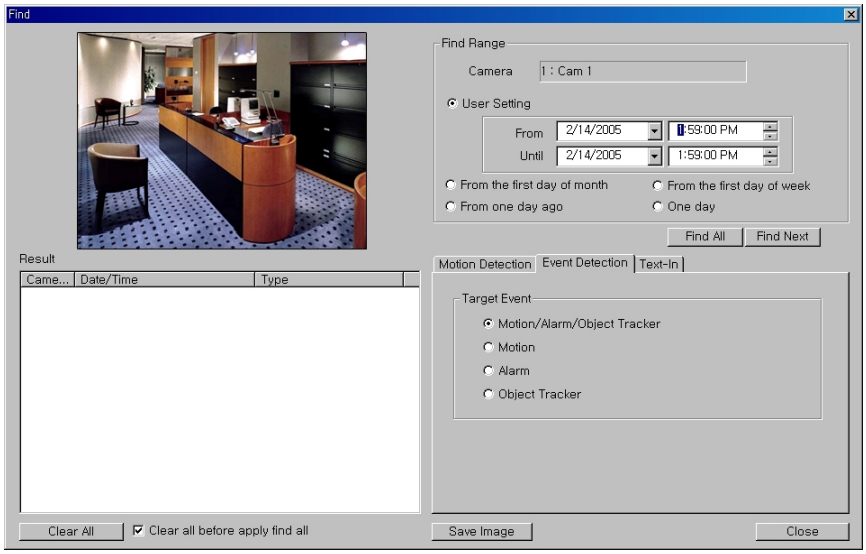
5. Move to Sensitivity, and set the sensitivity of the motion detection (1 to 5) by holding down and dragging the pointer. Move to Min. Blocks, and set the minimum number of blocks (1 to 100).

NOTE: The number of minimum blocks should be set less than the number of blocks within the motion detection zone. If the user draws a rectangle with 25 blocks and sets the minimum blocks to 30, nothing will be detected even though there is motion.

6. Click the Save Image button to save the current image of the result as a bitmap or JPEG file to the local hard disk drive or floppy disk.
7. Click the Find All button to find all event results within established find conditions and then display them in the Result list box. The image of the result can be displayed by double clicking the target event in the Result list. Remove all entries listed in the box by clicking the Clear All button. If the clear all before apply find all box is checked, the results before applying Find All will be removed.

NOTE: If you want to find one event at a time, click the Find Next button.

Finding Event Detection

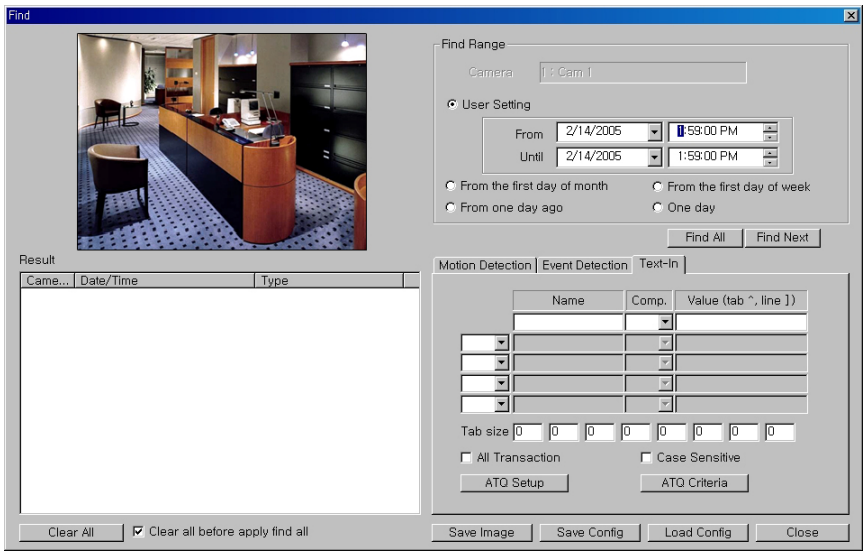


1. Move to Find Range to set the find parameters.
   - user setting: Finds event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
   - from first day of month: Finds event logs from the first day of this month.
   - from first day of week: Finds event logs from the first day of this week.
   - from one day ago: Finds event logs from one day ago.
   - one day: Finds event logs for one day.
2. Click the Event Detection tab, and move to Target Event, and select from Motion/Alarm/Object, Motion, Alarm or Object Tracker.
3. Click the Save Image button to save the current image of the result as a bitmap or JPEG file to the local hard disk drive or floppy disk.

4. Click the Find All button to find all event logs within established find parameters and then display the results in the Result list box. The image of the results can be displayed by double clicking the target event in the Result list. Remove all entries listed in the box by clicking the Clear All button. If the clear all before apply find all box is checked, the results before applying Find All will be removed.

NOTE: If you want to find one event at a time, click the *Find Next* button.

Finding Text-In



1. Move to Find Range to set the find parameters.
   - user setting: Finds event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
   - from first day of month: Finds event logs from the first day of this month.
   - from first day of week: Finds event logs from the first day of this week.
   - from one day ago: Finds event logs from one day ago.
   - one day: Finds event logs for one day.

NOTE: When using the ATQ (Automatic Transaction Query), selecting *User Setting* finds text-in logs from 00:00:00 until 23:59:59 of one day before ATQ activation time.

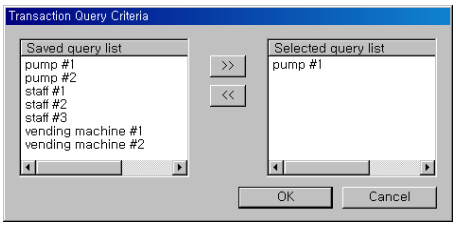
2. Click the Text-In tab, and set up the find condition of text-in.
   - Name: Enter the text to find.
   - Comp: Enter the comparison operator.
   - Value: Enter the comparison value.

NOTE: The tab and line can be used for more specific search of the text-in data. Use a symbol '^' indicating the location of each individual category, and ']' indicating the line where the category is located. See *Appendix 7 – Text-In Query* for details.

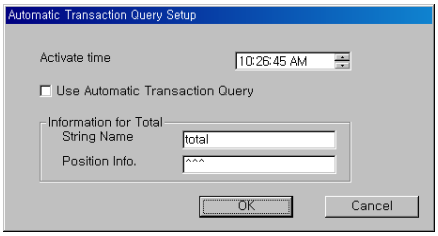
   - Tab size: Enter the tab size. Up to eight tabs can be set.
   - All Transaction: Check this box to find all transaction results within established find conditions.
   - Case Sensitive: Check this box to distinguish between capital letter and small letters entered in the Name box.

NOTE: ATQ (Automatic Transaction Query) queries and reports the transaction results automatically at the preset activate time. You can check the results using the POS button on the main GUI of the SmartSearch.

3. Click the ATQ Criteria button and the following Transaction Query Criteria dialog box displays. Select the query item from the Saved query list that are previously saved using the Save Cofig button, and click >> then OK button.



4. Click the ATQ Setup button and the following Automatic Transaction Query setup dialog box. Set the Activate time (query start time). Move to Use Automatic Transaction Query and check the box to enable the ATQ function. If you need the information for Total value from the text-in data, enter the values for String Name and Position Info.. Refer to the Appendix 7 – Text-In Query section for settings of query conditions.



5. Click the Save Image button to save the current image of the result as a bitmap or JPEG file to the local hard disk drive or floppy disk.
6. Click the Find All button to find all event logs within established find parameters and then display the results in the Result list box. The image of the results can be displayed by double clicking the target event in the Result list. Remove all entries listed in the box by clicking the Clear All button below the Result list box. If the clear all before apply find all box is checked, the results before applying Find All will be removed.

NOTE: If you want to find one event at a time, click the *Find Next* button. If you want to find all event for a specified camera, use Find All button with blank condition for text-in.

7. Click the Save Config button to save the current text-in related settings.
8. Click the Load Config button to load the saved text-in related settings.

Timetable Window

The timetable window consists of a record timetable, camera label and a calendar/bookmark. You will see the bank file recording information. Various functions of the timetable window enable fast searches.

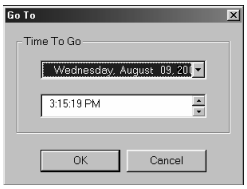
Camera Label Buttons

Camera label buttons show camera information. Change the current playback camera by clicking the camera label button. The camera label buttons that do not have recorded data cannot be selected. Only four camera labels are shown at a time. Use the up and down arrows to scroll through the list of cameras. The numbers on the left side of the panel displays eight camera groups. Selecting each group number shows four cameras (cameras 1 to 32 in order) on the right side directly.

Recording Status Bar

Recorded information is shown on the recording status bar. Search specific video by clicking the mouse on the desired segment or scroll by moving the scroll key from left to right. The color of the bar indicates different types of recording: Yellow for Pre-event, Cyan for Motion Detection, Lime for Object Tracker, Red for Sensor, Grey for Text-in, and Blue for Time-lapse. Every clicking the right mouse button on the timetable zooms the record timetable in with three levels; one time (hour based time interval) in the first level, four times (30 minute based) in the second level, and eight times (10 minute based) in the third level.

- Refresh: Click the Refresh button to reload recorded data from the local hard disk drive.
- Go To: Click the Go To button to go to the specific dates and times directly.



1. Move to Time To Go, select a date from the drop-down list, and set the time using the arrow buttons.
2. If you click the OK button after setting the conditions, the image meeting the established conditions will be displayed on the playback window. Selecting Cancel cancels the Go To operation and exits the dialog box without saving the changes.

Calendar

Select recorded data from the calendar. The calendar provides access to single day recorded data. Click the date you want to search. Scroll through the months by clicking and . Click the button to access the bookmark feature.

Bookmark

Add or delete bookmarks for recorded images. A bookmark lists the camera number, date and time, and bookmark description. The bookmark description will be shown automatically when the mouse cursor is not moving on a bookmark data for a while. This feature can be used for reviewing the specific image fast and easily. Click the button to bookmark the currently displayed image. If you want to delete the bookmark, select the target information and then click the button. Click the button to access the calendar feature.

NOTE: The user can add bookmarks for the remote site or backup drive. The only proper bookmark will be shown on the bookmark list.

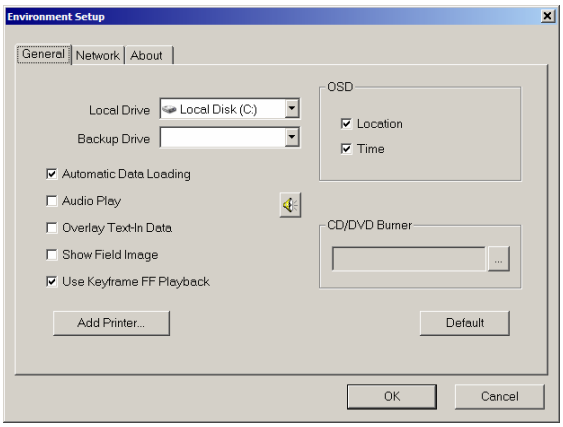
Audio Playback

Checking Audio Recording Configuration

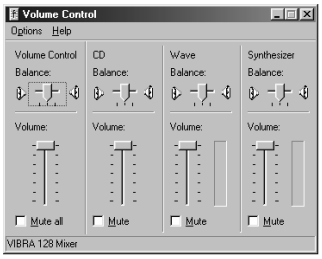
1. Click the Guard button to access to the SmartGuard mode.
2. Click the Setup button on the main GUI of SmartGuard.
3. Move to the Sensor tab, Motion Detection and/or Object Tracker tab.
4. Check that Record Audio is selected.
5. Click the Setup Audio... button, and check that the audio input type is properly set.

Checking Audio Playback Configuration

1. Click the Search button on the main GUI of SmartGuard to return to the SmartSearch mode.
2. Click the Setup button on the main GUI of SmartSearch.



3. Move to the General tab, and check that Audio Play is selected. Click the speaker icon, and check that the volume under Wave is set properly.



Playing Recorded Audio

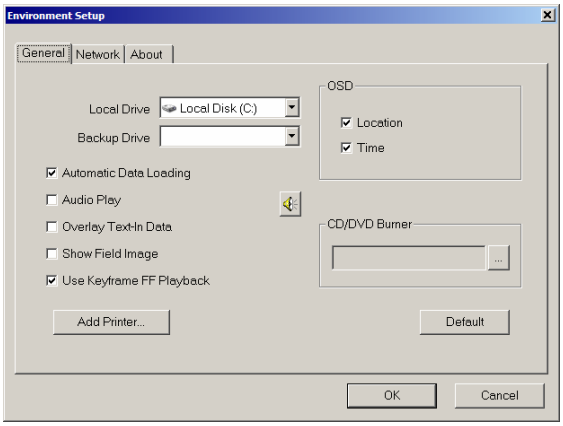
Click a playback button on the main GUI of SmartSearch. An Audio-play icon in the shape of a speaker will display at the top left in the small playback window if the target camera has recorded audio information. The recorded audio time bar is located below camera 32, and its information is shown on the recording status bar in pink.

NOTE: Audio is played only in the single-screen mode and forward playback mode.

SmartSearch Environment Setup

Click the Setup button on the Remote Control.

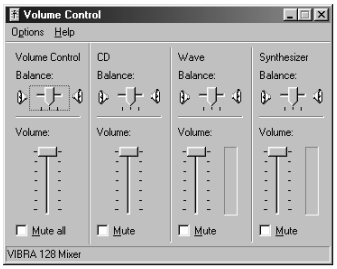
General



1. Move to Local Drive, and select the location of the local drive from the drop-down list. In most cases, the local drive is C:. Even if the software is installed on more than one hard disk drive, the local drive will be C:, assuming that the operating system (Windows) and the DVR program have been installed on the C: drive.

NOTE: It is recommended that you keep the *C:* drive as the default unless you are using the DVR for the test purposes.

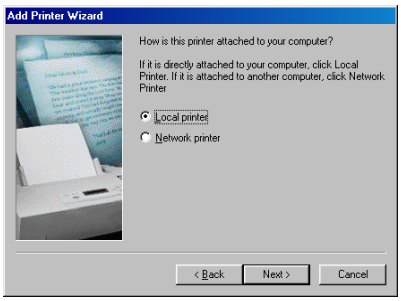
2. Move to Backup Drive, and select the backup path from the drop-down list.
3. Move to Automatic Data Loading, and check the box to automatically load recorded data from the local hard disk when SmartSearch is initiated. If this box is not checked, you will need to select the data loading path manually by clicking the Local, Remote or Backup buttons whenever initiating SmartSearch. See the Data Loading section for selecting a data loading path.
4. Move to Audio Play, and check the box to listen to recorded audio in the playback mode. Click the speaker icon, and adjust the volume under Wave if you want to set the volume of an installed speaker.



5. Move to Overlay text-in data, and check the box to display the text-in information on the image. If this box is not checked, the text-in information will be displayed on another dialog box.
6. Move to Show Field Image, and check the box to display recorded video with 640x480 (704x480 (704x576 PAL) for PDR16-RMT-RT model) resolution as the field image not the frame image. This option may help to reduce distorted patterns that might occur on frame images.
7. Move to Use Keyframe FF Playback, and check the box to reduce playback time and enable more fast searching. When releasing this option, the DVR returns to the normal playback speed, however, it displays natural playback video.
8. Move to OSD, and select the OSD information to be displayed on the playback image by checking the box next to desired options; Location and Time.
9. Move to CD/DVD Burner, and click the [...] button to register the location where the CD/DVD burning program is. When using the CD/DVD burning program provided by the manufacturer, select SmartBurnerPlus.exe in the C:\IDR-Series folder. Recorded data can be saved on the CD or DVD drive using the CD/DVD burning program.

NOTE: If the operating system version is lower than Windows XP Embedded 2.0, select SmartBurner.exe instead of SmartBurnerPlus.exe. However, SmartBurner.exe will not support saving recorded data on the DVD drive.

10. Click the Add Printer... button, and set up the printer. First, check that the printer is attached to the DVR properly. When you click the button, the Add Printer wizard window appears. Follow the instructions to install and set up the printer.

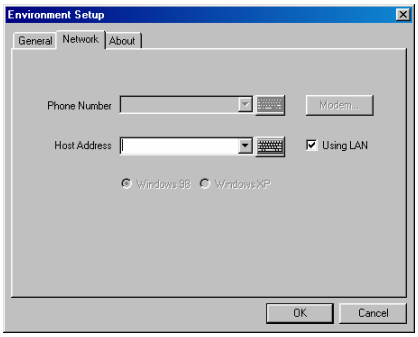

Add Printer Wizard
How is this printer attached to your computer?
If it is directly attached to your computer, click Local Printer. If it is attached to another computer, click Network Printer
Local printer
Network printer
< Back
Next >
Cancel

11. Click the Default button to reset the system to default values. After you have changed all the settings, you can save your changes by clicking the OK Button. Selecting Cancel exits the dialog box without saving the changes.

Network

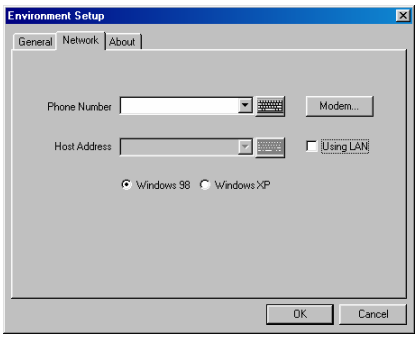
Set up network information for remote playback function.

When Using LAN



1. Move to Using LAN, and check the box when searching recorded images of other DVRs using a LAN.
2. Click the text field beside Host Address. Obtain the IP address of the DVR you want to connect to from the network administrator. Enter the IP address using either the actual keyboard or the virtual keyboard.

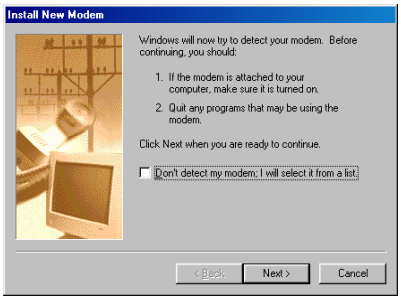
When Using a Modem (BASE system only)



1. Move to Using LAN, and remove the check from the box if networking the DVR is done via the modem.

NOTE: The system's default is *Using LAN*. When using a modem for remote connection, remove the check from the *Using LAN* box, and then select the operating system on the remote system; either *Windows 98* or *Windows XP*.

2. Click the text field beside Phone Number. Enter the telephone number to use. You can use either the actual keyboard or the virtual keyboard.
3. Click the Modem... button to set up the modem. First, check that the modem is attached to the DVR properly. When you click the button, the Install New Modem window appears. Follow the instructions to install and set up the modem.


Install New Modem
Windows will now try to detect your modem. Before continuing, you should:
1. If the modem is attached to your computer, make sure it is turned on.
2. Quit any programs that may be using the modem.
Click Next when you are ready to continue.
Don't detect my modem; I will select it from a list.
< Back
Next >
Cancel

About

- Program displays software version information.
- Copyright Information displays copyright information.

SmartBackup

To initiate the SmartBackup program, click the Setup button in the SmartGuard mode. Move to the System tab, and click the Set up backup... button. The following SmartBackup dialog box appears.

Stored Image Information

- Drive Status
  - Drive: Shows all attached storage devices including hard disk drive(s) and CD-RW and DVD RW drive.
  - Type: Shows the usage of each drive (: Recording, : Backup). When the drive is used for both recording and backup, backup icon will be displayed.
  - Recording Period: Shows the recording period contained on each (source or target) drive.
  - Status: Shows the drive's status (: Full, : Available, : Empty, : Not initialized).
- Recording Period: Shows the recording period contained on the recording drive.
- Latest Backup Time: Shows the latest backup date and time of the target drive.

Backup Drive Information

- Period: Shows the recording period contained on the backup drive.
- Remain: Calculates and shows the remaining space on the backup drive.

Status

Shows backup drive status and a progress bar for the auto/manual backup.

Manual

Click the Manual... button to start the manual backup mode. When the DVR is set to Auto Backup mode, this button will be inactivated. Release the auto backup mode during the SmartBackup Setup if you want to set up the manual backup. See the following Manual Backup section for setting up the manual backup.

Update

Click the Update button to update the values in the SmartBackup dialog box. Recording Period, Latest Backup and Backup Drive Information will be updated any time this button is selected.

Setup

Click the Setup... button to set up the backup information. See the SmartBackup Setup section.

CD/DVD Burner

Click the CD/DVD Burner button to save the backup data on the CD or DVD media using the CD/DVD burning program.

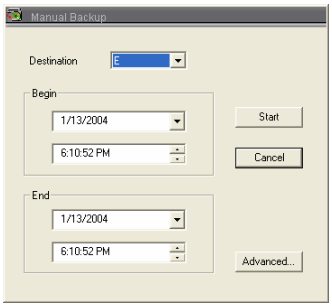
Hide

Click the Hide button to hide the SmartBackup dialog box. To close the dialog box and exit from the SmartBackup, click Quit at the top-right hand corner.

Manual Backup

Click the Manual... button in the SmartBackup dialog box to start the manual backup mode. The following Manual Backup dialog box appears. There are two ways to back up data manually; backup by time and backup by list.

CAUTION: During the manual backup, SmartGuard will stop recording.



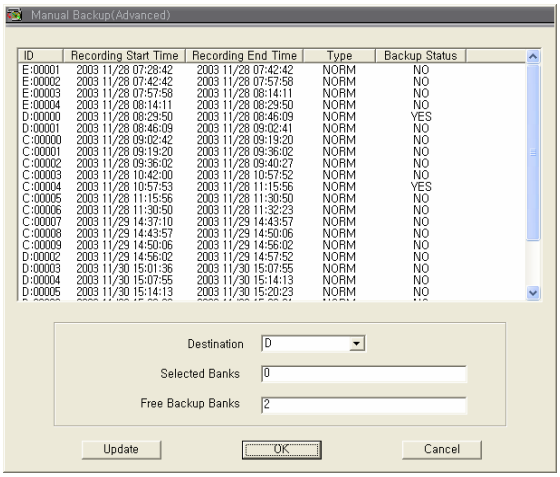
Manual Backup by Time

1. Move to Destination, and select a backup drive from a drop-down list.
2. Move to Begin, and set the backup beginning date and time. Select the beginning date from the drop-down list, and set the beginning time using the arrow buttons.
3. Move to End, and set the backup ending date and time. Select the ending date from the drop-down list, and set the ending time using the arrow buttons.
4. Click the Start button to start the manual backup by time. The DVR backs up the recorded data from the established beginning date and time to the established ending date and time. Only time-lapse mode recorded data will be backed up. Selecting Cancel exits the dialog box without saving the settings.

NOTE: Backup of audio data, pre-event images, and text-in data can only be done by using the Manual Backup by List. See the following *Manual Backup by List* section.

Manual Backup by List

1. Click the Advanced... button. The following Manual Backup (Advanced) dialog box appears.



2. ID displays the serial number of the record banks.

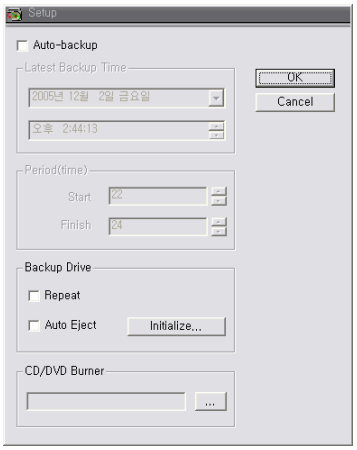
NOTE: The BANK is the basic unit for the database used by the DVR system.

3. Recording Start Time and Recording End Time display the recording beginning date/time and ending date/time of each bank.
4. Type displays the type of record bank. Normal means time-lapse recording, and PRExx means the pre-event recording.

5. Backup Status displays whether a target bank has already been backed up or not.
6. Select the bank to back up by clicking the target bank in the list box. Multiple banks can be selected by using the Ctrl or Shift keys on the actual keyboard. Click each bank to be backed up while pressing and holding the Ctrl key. If you want to select all banks in a specific range, click the first and last banks to be backed up within the range while pressing and holding the Shift key.
7. Move to Destination, and select a backup drive from a drop-down list.
8. The number of selected banks will be displayed in the Selected Banks box. The Free Backup Banks box displays the number of banks that are available for backup.
9. Click the Update button to update the record bank information. After you have set up the Manual Backup by List, click the OK button. Selecting Cancel exits the dialog box without saving the settings.

Setup

Click the Setup... button in the SmartBackup dialog box to set up the backup information. The following Setup dialog box appears.

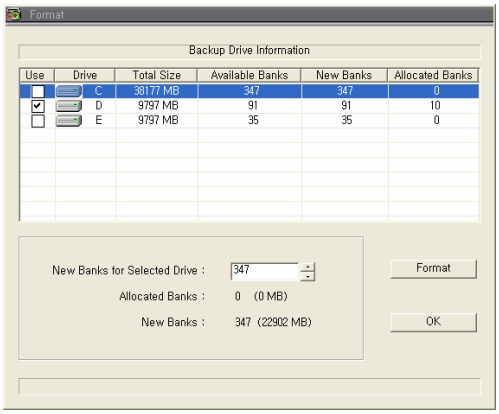


1. Move to Auto-backup, and check the box to set up auto backup. If this box is checked, the DVR will back up automatically according to the established auto backup settings. If Auto-backup is not selected, the DVR is in the manual backup mode and follows the established manual backup settings. See the Manual Backup section for setting up the manual backup.
2. Latest Backup Time shows the latest backup date and time. When the DVR is set to Auto Backup mode, only the banks recorded after Latest Backup Time will be backed up.
3. Move to Period (time), and set the backup beginning time in Start, and ending time in Finish using the arrow buttons. If you set the value to 0 for the Start and to 24 for the Finish, the DVR will back up from 0:00 to 24:00 automatically with checking out the bank periodically..
4. Move to Backup Drive. If you want to recycle all the backup drive, click the Repeat box. If the Repeat box is not checked, the DVR stops backing up when all the backup drive is full. Click the Auto Eject box to use the auto eject feature of the backup drive if the drive is so equipped.

NOTE: *Repeat* and *Auto Eject* can not be selected at the same time.

NOTE: Active menus under the Backup Drive will vary depending on the type of media used.

5. Click the Initialize... button to initialize the backup space. The backup drive should be initialized before backing up.



6. Drive column displays the drive location. Total Size column displays the total size of the installed backup drive, and Available Banks displays the number of available banks for backup. After initializing, Allocated Banks will display the number of allocated banks for backup.
7. Move to Use column, and check the box beside the drive to select it as a backup drive. Multiple drives can be selected.
8. Move to New Banks for Selected Drive, and set the number of banks to be used for backup by using the arrow buttons. New Banks column will display the number of banks to add.
9. Click the Format button to start initializing the backup space of the selected drive.

NOTE: Any bank contents stored on the drive will be deleted when you initialize the backup drive.

10. Move to CD/DVD Burner, and click the [...] button. Register the CD/DVD burning program location to use. When using the program provided by the CD/DVD burning manufacturer, select SmartBurnerPlus.exe in the C:\IDR-Series folder.

CD/DVD Burner

Click the CD/DVD Burner button in the SmartBackup dialog box to initiate the CD/DVD burning program registered during the SmartBackup setup. Refer to the SmartSearch – Run CD/DVD Burner section for the instructions on CD/DVD burning.

NOTE: CD/DVD burning is not available during the automatic backup.

Target files for CD/DVD burning

- Image files saved in SmartSearch mode.
- Video files saved in SmartSearch mode.
- MiniBank files saved in SmartSearch mode.
- Whole ibbank directory on the drive used for backup.
- Image files saved in the C:\IDR-Series\temp\RecordExt folder.

NOTE: The size of the ibbank directory should be smaller than the capacity of the CD or DVD drive. When using the 650MB CDR or CDRW media, you must not exceed two backup banks.

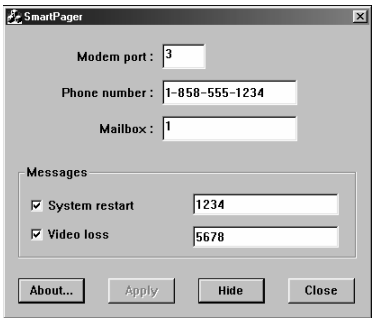
Safeguards on Installing and Using the CD/DVD Burning Program

- Do not install the DirectCD or HP-DLA programs for the system safety when installing the CD burning program.
- Select the Buffer underrun prevention option when initiating the CD or DVD burning program. Selecting this option can be different depending on the installing program.
- Refer to the manual provided with the CD or DVD drive for instructions on burning the media.

SmartPager

SmartPager pages the system manager when something happens to video input, such as a video signal loss or system reboot. If SmartServer and SmartPager are connected via modem and you want to run SmartServer and SmartPager at the same time, a second modem must be installed. To set up SmartPager, click the Setup button in the SmartGuard mode. Move to the System tab, and click the Set up Pager... button. The following SmartPager dialog box appears.

NOTE: SmartServer is invisible software that prepares images to send to remote sites via a modem or LAN.



1. Click the text field beside Modem port, and enter the COM port number of the modem.
2. Click the text field beside Phone number, and enter in the pager number. Make certain to enter the number exactly as it must be dialed including any numbers such as 9 to get an outside line or area codes.
3. Click the text field beside Mailbox, and enter the number for paging when the pager uses a voice mailbox.
4. Move to Messages, and select the paging condition. Check the box beside the events that should cause the DVR to call the pager and enter the user-specified number in the text field. Multiple conditions can be selected. When selecting System restart, the DVR pages whenever the system is restarted. When selecting Video loss, the DVR pages whenever the system loses video input from a camera.
5. Click the About... button to see the software version information.
6. Click the Apply button to save the changes. This button is enabled when certain values are changed. The changes are saved only when you click this button.
7. Click the Hide button to hide the SmartPager dialog box.
8. Click the Close button to end SmartPager.

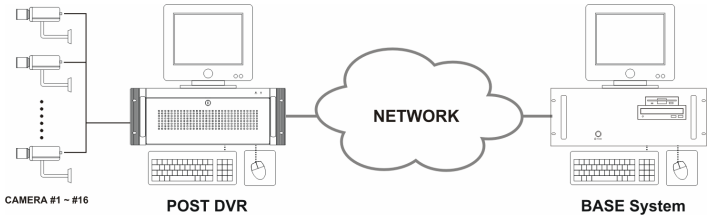
Chapter 3 — Remote Access

You can view video or control the DVR remotely via modem or LAN. For remote access, we provide the SmartBase program. It has three major functions; remote monitoring, remote playback and remote control. Remote monitoring makes it possible to do real-time monitoring remotely, and remote playback makes it possible to play recorded video from the DVR remotely. Remote control allows controlling the DVR remotely including changing the setup.

NOTE: A BASE system can view live video or review recorded video on POST systems. The POST system can only review recorded video on other POST systems when they are networked via LAN.

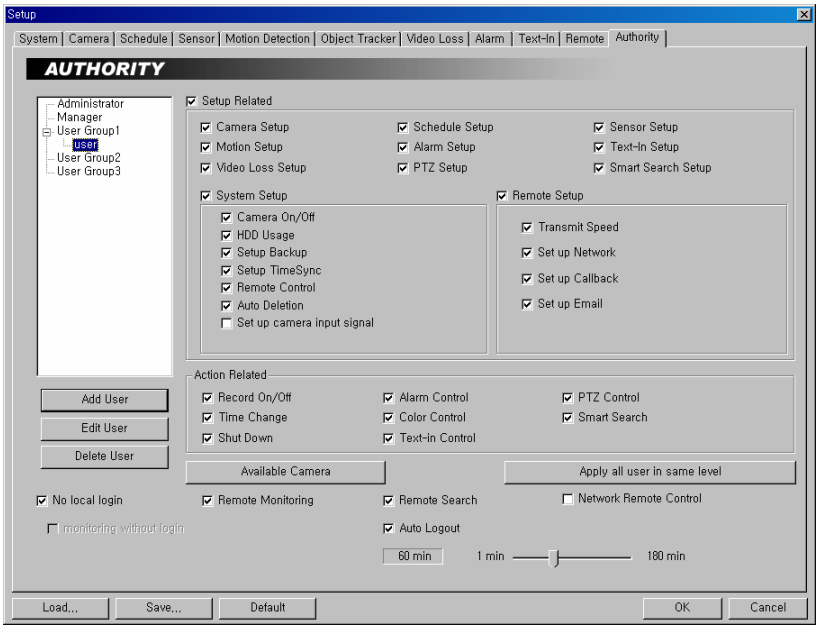
Installation

At least one POST DVR and a system for BASE are needed for using the remote access function. The POST is the system to which the camera cables connect directly, and the BASE is the system which is installed at another site for remote access. Install the BASE software at the remote site after installing the DVR.



POST System Setup

Click the Setup button in the SmartGuard mode, and the following Setup dialog box appears. Move to the Authority tab, and check the Remote Monitoring box for the user's authorization if you want to access to the remote POST system from the BASE system.



BASE System Setup

NOTE: It is suggested that the computer used for the BASE system has at least a 1.5GHz Pentium 4 and 256MB RAM for proper operation.

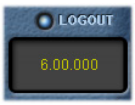
SmartBase — Remote Monitoring and Recording Software

NOTE: When selecting the *Remote Monitoring* for the user's authorization during the POST system setup, you can access to the remote POST system from the BASE system.

After installing the BASE software on your PC, click the Start button from the task bar. Move the cursor to Programs, then to IDR Series BASE to open the program list. Select SmartBase.

NOTE: If you do not use the overlay display mode on the SmartBase system, you can move the SmartBase window at any place on the monitor by dragging the mouse.

Quit: Click the button to quit the system.



Version: Displays the software version of the POST system currently connected.

Monitor

- Display Format: Various display formats (single-screen, full-screen, quad, 3+4, 3x3, 2+8, 4x4, 5x5 and 1+32) are provided for convenient user interface. Each format can be selected by clicking the screen buttons. The camera groups for multi-screen formats are composed of cameras 1 to 32 in order. The user can select which camera group is displayed by clicking any camera button in a group from camera buttons.
- OSD: OSD information including camera description, recording status, and event detection can be displayed on the image. Click the Setup button and move to the System tab in the Setup dialog box. Check the Show OSD box to display the OSD information.

System Status

- Clock Mode: Click the left mouse button on the clock area, and set date display (MM-DD-YYYY/...) and time display (12 Hours/24 Hours) formats. Click the right mouse button on the clock area, and set date, time, and time zone.

CAUTION: If you change the time, images dated later than the new date/time are deleted. Back up the images if you want to save them.

- HDD Indicator: Shows the remaining hard disk space.
- Power LED: The Power LED is lit when the DVR is On.
- Alarm LED: The Sensor Detect LED is lit when the sensor has been detected.
- Mode Status: The Recording LED is lit when the DVR is in the recording mode.
- HDD Usage: The Repeat Recording LED is lit when the DVR is set to repeat recording in case of recording space shortage.

Image Adjust

You can adjust the brightness, contrast, hue and saturation by clicking the designated buttons. Click the Default button to reset them to the default settings.

NOTE: These adjustments should not be used to correct improperly set cameras or monitors.

NOTE: It is important that images are properly adjusted. These adjustments cannot make up for improperly adjusted images when the images are recorded.

PTZ Control

Clicking the PTZ icon

button causes the PTZ control buttons to display. Controlling PTZ from the SmartBase mode changes the PTZ setup of the remote DVR. Only the administrator and authorized users for PTZ control can change PTZ setup from a remote site.

Alarm Control

Clicking the alarm icon

button causes the alarm control buttons to display. The user can check the alarm status and control the alarm output remotely. Only the administrator can control the alarm output from a remote site. Click the left or right arrow buttons to display the previous or next alarm button panel.

POS

Clicking the POS icon

button causes the POS control buttons to display. The user can watch the text data coming from the POS remotely.

Event Log List

Shows event logs and callback messages of the remote system. Scroll up and down the list by holding down the left mouse button on the list while moving the cursor up and down, or roll the mouse wheel on the list. The display information of the event log and callback message is shown below:

Event Log – Date_Time (Site Name)
[Camera No. of the BASE system] Alarm Type Alarm No.
Callback Message – Date_Time (callback)
Site Name : Alarm Type Alarm No.

Camera Buttons

Click the individual camera buttons to display the selected camera. Click the or button to display the previous or next camera button panel.

Screen Buttons

- To select the screen mode, click one of the screen buttons; single-screen, quad, 3+4, 3x3, 2+8, 4x4, 5x5, 1+32.
- To view a specific image in the single-screen mode, move the cursor to that image and double click the left mouse button. Click the left mouse button in the window to return to the previous screen mode.

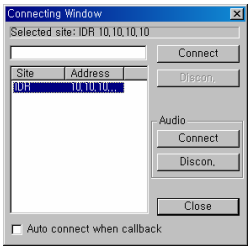
Utility Buttons

Auto Sequencing: When this button is clicked, the SmartBase sequences the cameras in order. Whenever you click the button, it toggles between On and Off. The switching interval can be set during the system setup.

Mode Selection: The record mode is selected when this button is clicked. SmartBase returns to view only mode automatically when it is unable to record (for example, when the hard disk is full).

NOTE: The DVR records only in accordance with the recording schedule, which can be set during the system setup. Before you install the DVR, you need to fully understand the recording schedule. Note also that clicking this recording mode button only prepares the DVR for recording. In this state, the DVR will follow the recording schedule.

Connect: When this button is clicked, the following Connecting Window appears. If you want to search the site quickly from the site list, enter the site name or address in the text field and then hit the enter key. Entering the ID and password of the remote system to connect is required. Check the Auto connect when callback box if you want to connect to the remote site automatically when receiving a callback message.



NOTE: If you want to arrange the site list in the descending orders, click the *Site* or *Address* headings on the list box.

NOTE: Two-way audio communication between POST and BASE is supported. Click the *Connect* button under *Audio* to enable this function.

Setup: When this button is clicked, a dialog box appears. The dialog box has four tabs. See the following System and Remote Monitoring Setup section.

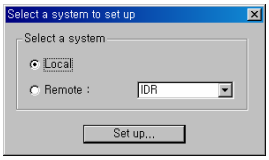
Accessing SmartSearch: Click this button to run the SmartSearch. If the SmartBase is connected to the remote site, the SmartSearch will log in the same site automatically with the same login ID and password.

Full Screen: Click this button to enter the full-screen mode. All of the control buttons disappear, and the monitoring window takes up the full screen in the full-screen display mode. To return from the full-screen mode, click the left mouse button anywhere on the screen.

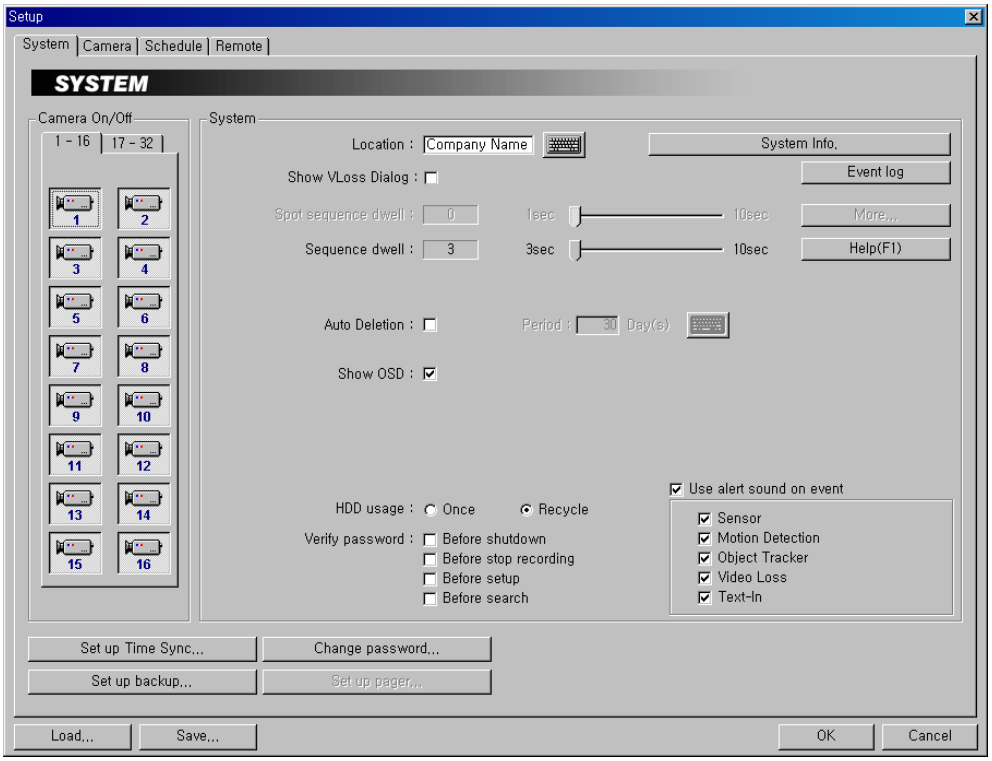
NOTE: Full-screen display cannot be supported if the VGA card of the system does not support the overlay function.

System and Remote Monitoring Setup

1. Click the Setup button on the main GUI of SmartBase.



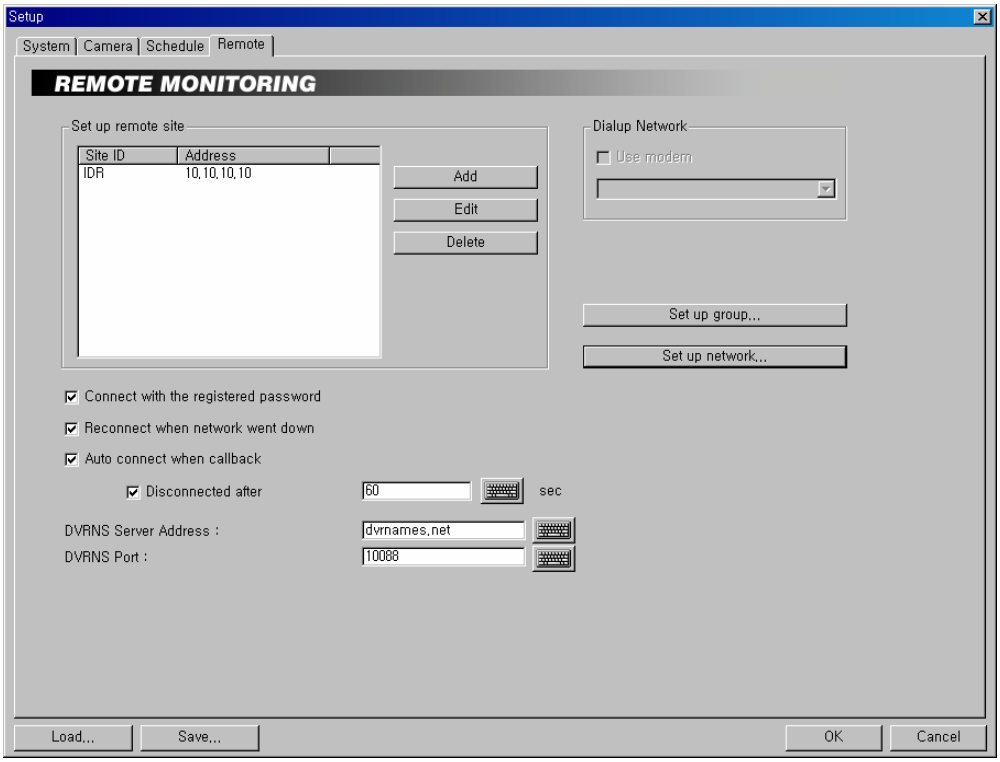
2. Click the Local radio button and then click the Set up... button.
3. Move to the System tab.



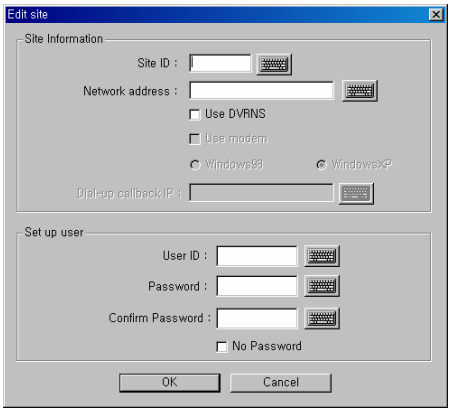
4. Move to Show VLoss Dialog, and check the box if you want to show the video loss acknowledge dialog when the video loss is detected.
5. Click the Event log button to display the event log list of the BASE system.
6. Move to Verify password, and check the boxes to use a password Before shutdown, Before stop recording, Before setup, and/or Before search.
7. Move to Use alert sound on event, and check the box if you want the system to alert for the selected events when events occur.
8. Click the Change password… box to change the password. The default password is 111.

NOTE: Refer to the *SmartGuard* section for setting up other menus.

9. Move to Remote tab.



10. Click the Add button, and register the remote site. Up to 256 sites can be registered.



11. Click the text field beside Site ID, and enter the site name to register using either the actual keyboard or the virtual keyboard.
12. Click the text field beside Network address, and enter the IP address of the remote DVR, acquired from your network administrator. Move to Use modem, and check the box when using a modem for remote access, and then select the operating system on the remote system; either *Windows 98* or *Windows XP*. For the remote connection via a modem, the dial-up networking must be installed on the remote DVR and the Phone number and Dial-up callback IP should be entered. See Appendix 4 – Network Setup (Modem) for setting up the dial-up networking.

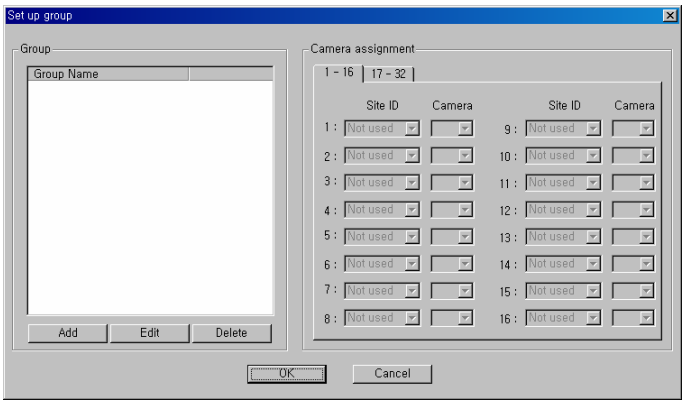
NOTE: When using the DVRNS server, check the *Use DVRNS* box, and then enter the site name to register in the *Site ID* field and the DVR name of the remote site in the *Network address* field. The DVR name you enter should match the DVR name set during the Remote Monitoring setup on the remote DVR.

NOTE: The same IP address entered during the dial-up callback setup on the POST system should be entered on the BASE system. The independent IP address starting from 10.10.10.20 will be used to identify the remote DVR systems.

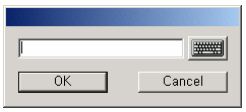
13. Click the text field beside User ID, and enter the user ID.
14. Click the text field beside Password, and enter the user password. Then click the text field beside Confirm Password, and enter the user password again to confirm the password. Move to No Password, and check the box when using a User ID without a password.

NOTE: Up to 16 characters maybe used for a user ID, and eight characters for a password.

15. Clicking the OK button saves the changes and returns to the Setup dialog box. Selecting Cancel exits the dialog box without saving the changes.
16. In the Remote tab, move to Connect with the registered password. If this box is checked, the remote DVR will be connected automatically with registered user ID and password. If there is no registered password, the login dialog box will appear. The connection fails when an incorrect password is entered.
17. Move to Reconnect when network went down, and check the box if you want to reconnect the remote site automatically when you are disconnected from the remote site for network problems.
18. Move to Auto connect when callback…, and check the box if you want to connect the remote site automatically when the BASE system receives a callback message. This auto callback connection can be disconnected automatically if you check the Disconnect after box and set the desired disconnection time.
19. Move to Dialup Network, and check the Use modem box when using a modem for remote access, and then select a modem to use from the drop-down list.
20. Click the Set up group..., and set up the group management. The BASE system can monitor up to 32 remote DVRs simultaneously. For the effective management of the remote DVRs, the user can register multiple remote DVRs in one group. Up to 64 groups can be registered.



21. Move to Group, and set up the group information. Click the Add button to register a new group.



22. Enter the name of the group to register, and click the OK button.
23. Move to Camera assignment, and select the target remote site and camera number from the drop-down list.
24. Clicking the OK button saves the changes and returns to the Setup dialog box. Selecting Cancel exits the dialog box without saving the changes.

NOTE: If you want to edit the established group information, click the *Edit* button after selecting a registered group from the list. Then, edit the group information. If you want to delete a registered group, click the *Delete* button after selecting a registered group from the list.

25. Click the Set up network..., and set up the network. See Appendix 3 – Network Setup (LAN) or Appendix 4 – Network Setup (Modem).
26. After you have changed the settings, you can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

SmartSearch — Remote and Local Playback Software

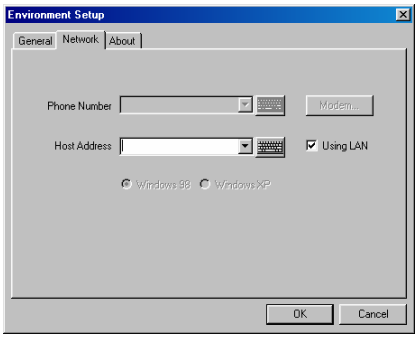
The user can access the SmartSearch mode by clicking the Search button on the main GUI of SmartBase.

Remote Playback Setup

CAUTION: The user can play back the video recorded on the remote DVR when the user has an authority with Remote Search. The *Remote Search* option should be selected during the SmartGuard – Authority setup of the remote DVR you want to connect.

NOTE: During the remote playback on the BASE system, the information about recorded audio will be shown on the timetable.

Click the Setup button to display the Environment Setup dialog box. And then set up the network information for remote playback.



NOTE: The system's default is *Using LAN*. When using a modem for remote connection, remove the check from the *Using LAN* box, and then select the operating system on the remote system; either *Windows 98* or *Windows XP*.

NOTE: See *Chapter 2* **–** *Tools: SmartSearch* section for setting up and using the SmartSearch.

Appendix 1 — Accessing Windows

Since the DVR is new technology, it might be unfamiliar to many users. Many problems can occur from incorrect Windows settings. The DVR requires specific Windows settings for optimal performance. That is why the Windows mode has been blocked. This section describes the steps to get into the Windows mode.

The Relationship Between "Accessing Windows" and "SmartShell"

The SmartShell is the only way to get into the Windows mode. See Appendix 2 – SmartShell. To access Windows, you must be in the SmartShell mode because the DVR will shut down when you click the POWER button in the SmartGuard mode. Use the following instructions to change the Automatic Shutdown mode so that you will to be able to access Windows.

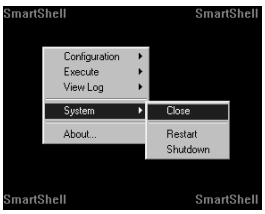
How to Access the Automatic Shutdown Hidden Dialog Box

1. Double click the logo (or empty space) located above the Rec button in the SmartGuard mode. The splash window appears.
2. Type idisman and press the Enter key on the keyboard. A small dialog box appears.
3. Move to Automatic Shutdown, and check the box to shutdown the DVR when you end SmartGuard. If this box is not checked, the DVR will enter the Windows mode via the SmartShell when shutting down SmartGuard.
4. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

CAUTION: Do NOT change other options and keep the factory default setting. Ask your system administrator about other options in the hidden dialog box.

How to Access Windows

If you release the Automatic Shutdown mode in the hidden dialog box, clicking the POWER button in the SmartGuard mode causes the DVR to enter the SmartShell mode. Click the right mouse button in the SmartShell mode. The following Menu dialog box appears.



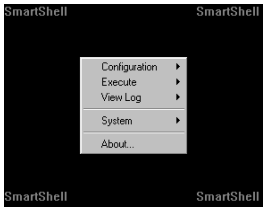
Click System to open options, and select Close. The DVR will enter the Windows mode. To return to the DVR programs, click the Start button on the Task Bar, move the cursor to Programs, and then to DVR to open the program list. Select SmartShell. The DVR will enter the SmartGuard mode via the SmartShell.

Appendix 2 — SmartShell

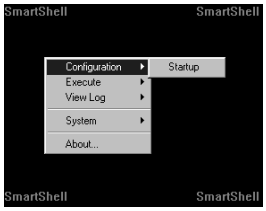
SmartShell is very easy and dependable software for maintaining your DVR. The software will help the DVR recover from unexpected system failures. SmartShell is also the only way to access Windows.

How to Access SmartShell

If you release the automatic shutdown mode in the hidden dialog box, clicking the POWER button in the SmartGuard mode enters the SmartShell mode. Click the right mouse button in the SmartShell mode. The following Menu dialog box appears.

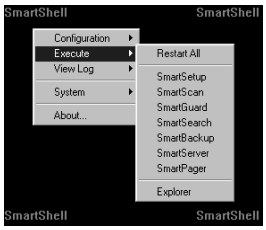


Configuration Menu



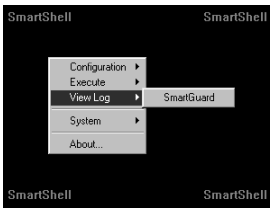
- Startup: Configures the startup programs of the DVR.

Execute Menu



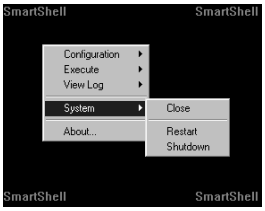
- Restart All: Restarts the programs.
- SmartSetup: Enters the SmartSetup program to set up the IBank, the database of the DVR. Ask your system administrator for details about the IBanks setup.
- SmartScan: This is invisible software that scans the hard disk drive for recording.
- SmartGuard: Enters the SmartGuard program.
- SmartSearch: Enters the SmartSearch program.
- SmartBackup: Enters the SmartBackup program.
- SmartServer: This is invisible software that prepares images for transmitting to remote sites via modem or LAN.
- SmartPager: Enters the SmartPager program to set up the pager function.
- Explorer: Initiates Explorer without accessing Windows.

View Log Menu



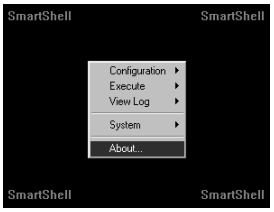
- SmartGuard: Displays the log file that logs every operation of the DVR.

System Menu



- Close: Closes SmartShell and accesses Windows.
- Restart: Restarts the DVR.
- Shutdown: Shuts down the DVR.

About... Menu

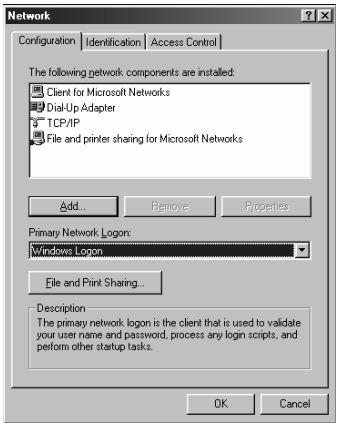


- About...: Displays the software version information.

Appendix 3 — Network Setup (LAN)

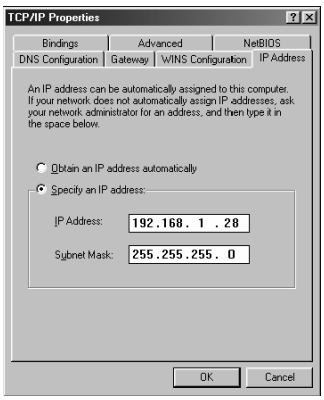
LAN Setup for Windows 98 System

1. In the Windows mode, click Start on the Task Bar, move to Control Panel, and then to Network.

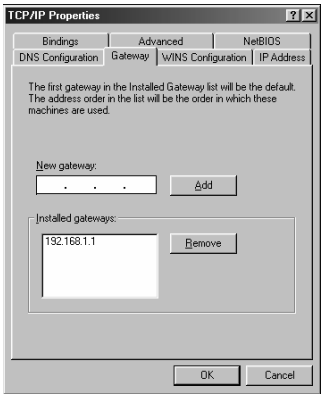


2. Under the Configuration tab in the Network dialog box, move to Primary Network Logon and select Windows Logon from the drop-down list. click TCP/IP in the list of network components, and then click the Properties button below.

NOTE: If *TCP/IP* is not listed, click the *Add...* button. In *Select Network Component* Type dialog box, select *Protocol* from the list of network component types and click the *Add...* button. In the *Select Network Protocol* dialog box, select *Microsoft* for the Manufacturer and *TCP/IP* for the Network Protocols. You can save your changes by clicking the *OK* button. Selecting *Cancel* exits the dialog box without saving the changes.



3. Under the IP Address tab, click the Specify an IP address radio button. And enter the IP Address and Subnet Mask acquired from your network administrator.

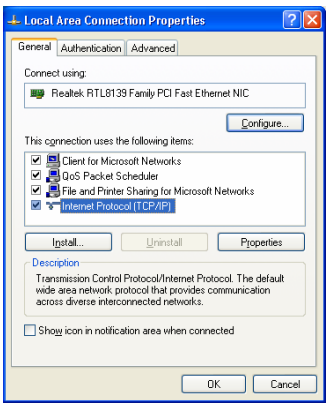


4. Move to the Gateway tab, and enter the gateway address acquired from your network administrator in the text field under New gateway, and then click the Add button. You can save your changes by clicking the OK button. If you select OK, you might need to allow the DVR to reboot. Selecting Cancel exits the dialog box without saving the changes.

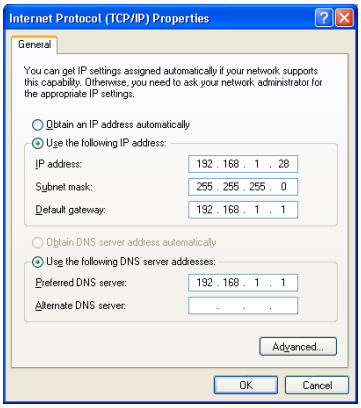
LAN Setup for Windows XP System

1. In the Windows mode, go to Start on the Task Bar, and to the Control Panel. Then, open the Network Connection.

2. Click the LAN card information under the LAN or High-Speed Internet. Then, click the right mouse button, and select Properties from the menu.



3. Check the Internet Protocol (TCP/IP) box, and click the Properties button.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 1 . 28
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
192 . 168 . 1 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
192 . 168 . 1 . 1
Alternate DNS server:
Advanced...
OK
Cancel

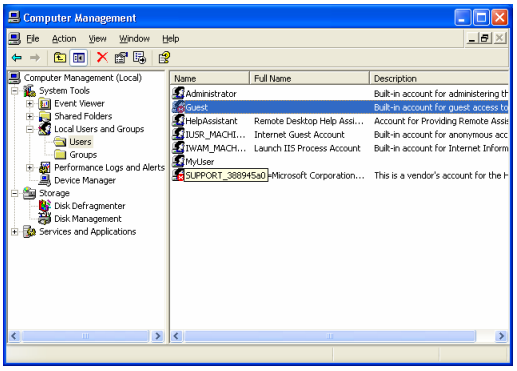
4. Click the Use the following IP address radio button. Enter the IP address, Subnet mask, and Default gateway acquired from your network administrator. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

Appendix 4 — Network Setup (Modem)

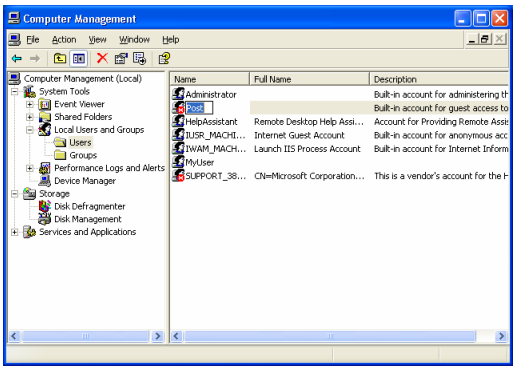
Dial-up Networking Setup for Windows XP POST System

1. Dial-up Networking Setup for Remote Access

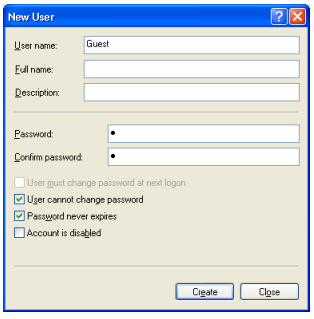
1.1 In the Windows mode, go to Start on the Task Bar, and to Control panel. Then, open Administrative Tools, and double click Computer Manager.



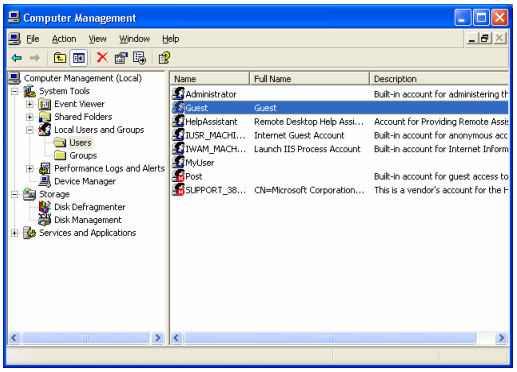
1.2 Under Computer Management (Local), select System Tools, and Local Users and Groups and then Users. Move to Guest described as Built-in account for guest access to the computer/domain, and select Rename by clicking the right mouse button on the Guest.



1.3 Enter "Post". Then go to the pull-down menu Action, and select the New User.

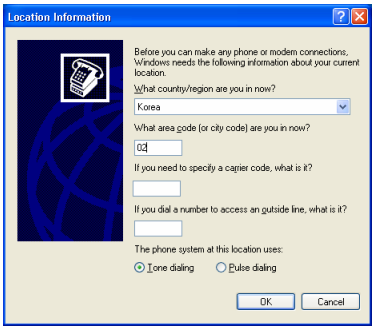


1.4 Enter "Guest" for the User name, and "1" for the Password and Confirm password. Check the User cannot change password box and Password never expires box, and then click the Create button.

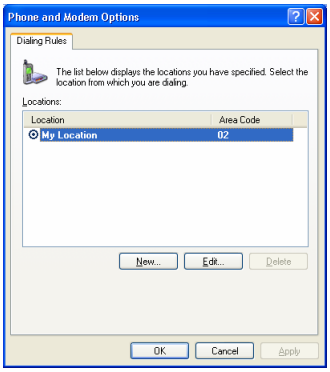


1.5 Make sure that Guest user is created.

1.6 In the Windows mode, go to Start on the Task Bar, and to Control panel. Then, open Network Connection. Double click Create a new connection. The Location Information dialog box can appear when you set up dial-up networking first after installing the modem. If the following dialog box does not appear, move to step 1.8.


Location Information
Before you can make any phone or modem connections, Windows needs the following information about your current location.
What country/region are you in now?
Korea
What area code (or city code) are you in now?
02
If you need to specify a carrier code, what is it?
If you dial a number to access an outside line, what is it?
The phone system at this location uses:
Tone dialing
Pulse dialing
OK
Cancel

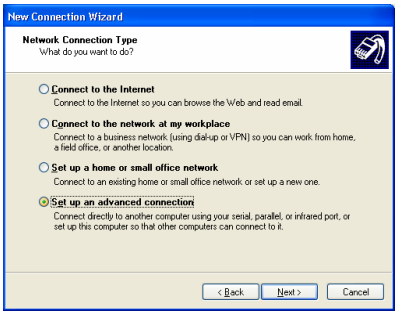
1.7 Complete the information about your current location, and click the OK button.



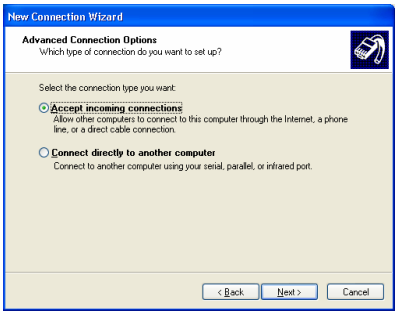
1.8 Select the location from which you are dialing, and click the OK button. The New Connection Wizard dialog box appears.

New Connection Wizard
Welcome to the New Connection Wizard
This wizard helps you:
• Connect to the Internet.
• Connect to a private network, such as your workplace network.
• Set up a home or small office network.
To continue, click Next.
< Back
Next >
Cancel

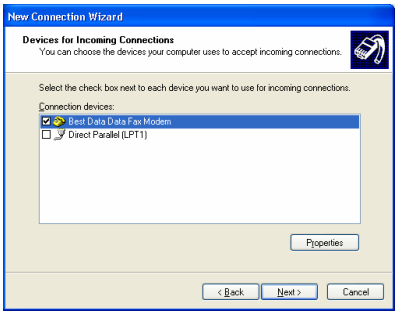
1.9 Click the OK button.


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

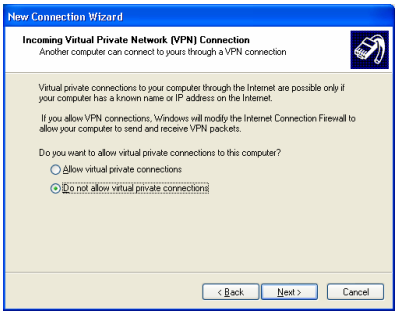
1.10 Select Set up an advanced connection, and click the Next button.


New Connection Wizard
Advanced Connection Options
Which type of connection do you want to set up?
Select the connection type you want:
Accept incoming connections
Allow other computers to connect to this computer through the Internet, a phone line, or a direct cable connection.
Connect directly to another computer
Connect to another computer using your serial, parallel, or infrared port.
< Back
Next >
Cancel

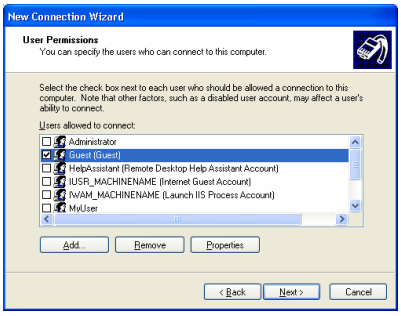
1.11 Select Accept incoming connections, and click the Next button.


New Connection Wizard
Devices for Incoming Connections
You can choose the devices your computer uses to accept incoming connections.
Select the check box next to each device you want to use for incoming connections.
Connection devices:
Best Data Data Fax Modem
Direct Parallel (LPT1)
Properties
< Back
Next >
Cancel

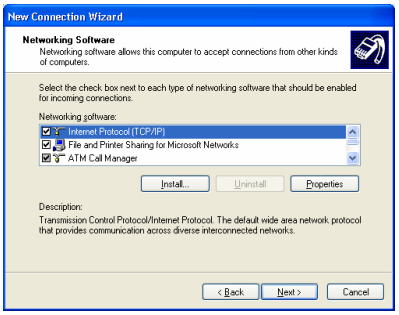
1.12 Select the modem you want to use, and click the Next button.


New Connection Wizard
Incoming Virtual Private Network (VPN) Connection
Another computer can connect to yours through a VPN connection
Virtual private connections to your computer through the Internet are possible only if your computer has a known name or IP address on the Internet.
If you allow VPN connections, Windows will modify the Internet Connection Firewall to allow your computer to send and receive VPN packets.
Do you want to allow virtual private connections to this computer?
Allow virtual private connections
Do not allow virtual private connections
< Back
Next >
Cancel

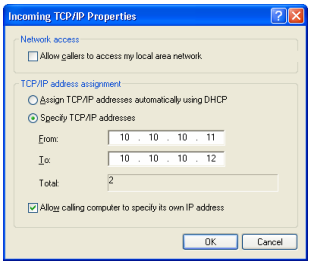
1.13 Select Do not allow virtual private connections, and click the Next button.


New Connection Wizard
User Permissions
You can specify the users who can connect to this computer.
Select the check box next to each user who should be allowed a connection to this computer. Note that other factors, such as a disabled user account, may affect a user's ability to connect.
Users allowed to connect:
Administrator
Guest (Guest)
HelpAssistant (Remote Desktop Help Assistant Account)
IUSR_MACHINENAME (Internet Guest Account)
IWAM_MACHINENAME (Launch IIS Process Account)
MyUser
Add...
Remove
Properties
< Back
Next >
Cancel

1.14 Check the Guest box for the user permission, and click the Next button.


New Connection Wizard
Networking Software
Networking software allows this computer to accept connections from other kinds of computers.
Select the check box next to each type of networking software that should be enabled for incoming connections.
Networking software:
Internet Protocol (TCP/IP)
File and Printer Sharing for Microsoft Networks
ATM Call Manager
Install...
Uninstall
Properties
Description:
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
< Back
Next >
Cancel

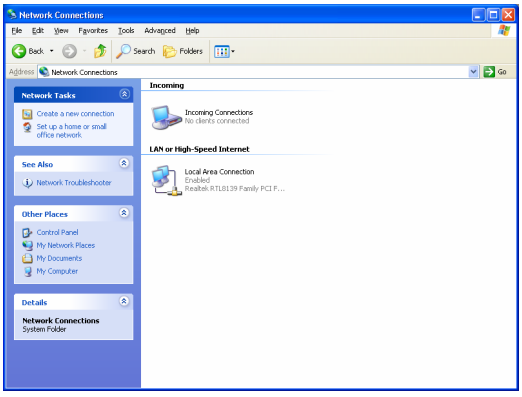
1.15 Check the Internet Protocol (TCP/IP) box, and click the Properties button.



1.16 Under the Network access, remove the check from the Allow callers to access my local area network box. Under the TCP/IP address assignment, click the Specify TCP/IP addresses radio box, and enter the From as "10.10.10.11", and the To as "10.10.10.12". And then check the Allow calling computer to specify its own IP address box. Click the OK button to save the changes and return to the previous dialog box. Click the Next button in the New Connection Wizard dialog box.

New Connection Wizard
Completing the New Connection Wizard
You have successfully completed the steps needed to create the following connection:
Incoming Connections
The connection will be saved in the Network Connections folder.
To create the connection and close this wizard, click Finish.
< Back
Finish
Cancel

1.17 Finish the network connection wizard by clicking the Finish button.



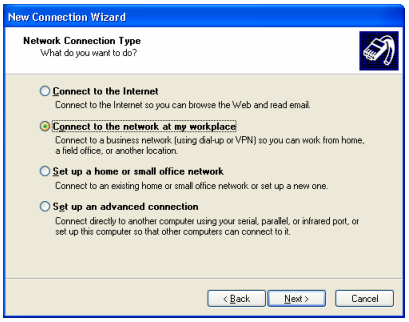
1.18 Make sure that Incoming Connections has been registered.

2. Dial-up Networking Setup for Callback Function

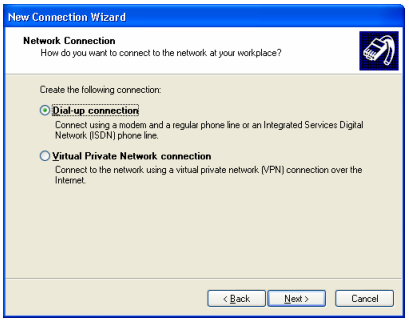
2.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open Network Connection. Double click Create a new connection.

New Connection Wizard
Welcome to the New Connection Wizard
This wizard helps you:
• Connect to the Internet.
• Connect to a private network, such as your workplace network.
• Set up a home or small office network.
To continue, click Next.
< Back
Next >
Cancel

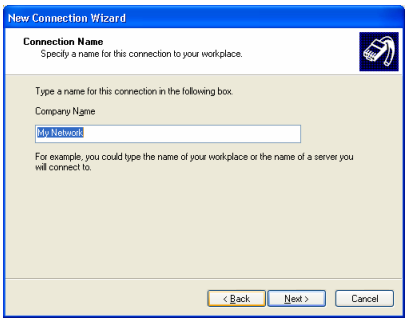
2.2 Click the Next button.


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

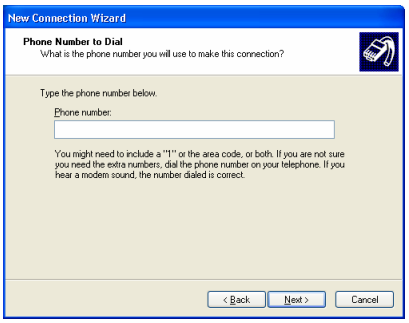
2.3 Click the Connect to the network at my workplace radio box, and click the Next button.


New Connection Wizard
Network Connection
How do you want to connect to the network at your workplace?
Create the following connection:
Dial-up connection
Connect using a modem and a regular phone line or an Integrated Services Digital Network (ISDN) phone line.
Virtual Private Network connection
Connect to the network using a virtual private network (VPN) connection over the Internet.
< Back
Next >
Cancel

2.4 Click the Dial-up connection radio box, and click the Next button.


New Connection Wizard
Connection Name
Specify a name for this connection to your workplace.
Type a name for this connection in the following box.
Company Name
My Network
For example, you could type the name of your workplace or the name of a server you will connect to.
< Back
Next >
Cancel

2.5 Enter "My Network" for the Connection Name, and click the Next button.

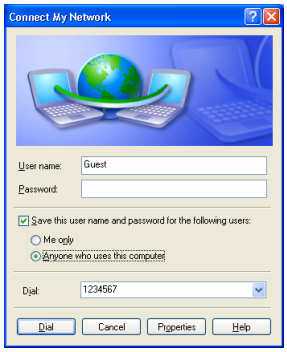

New Connection Wizard
Phone Number to Dial
What is the phone number you will use to make this connection?
Type the phone number below.
Phone number:
You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.
< Back
Next >
Cancel

2.6 Click the Next button without any changes.

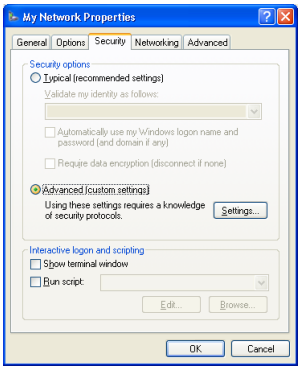
New Connection Wizard
Completing the New Connection Wizard
You have successfully completed the steps needed to create the following connection:
My Network
• Share with all users of this computer
The connection will be saved in the Network Connections folder.
Add a shortcut to this connection to my desktop
To create the connection and close this wizard, click Finish.
< Back
Finish
Cancel

2.7 Finish the network connection wizard by clicking the Finish button.

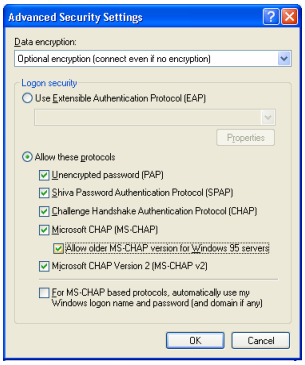
2.8 Select My Network in the Network Connections dialog box.



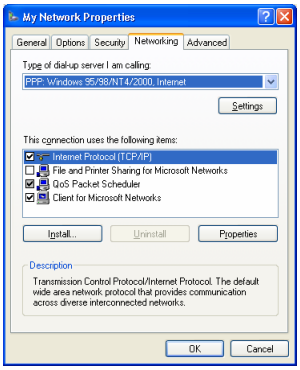
2.9 Click the Properties button.



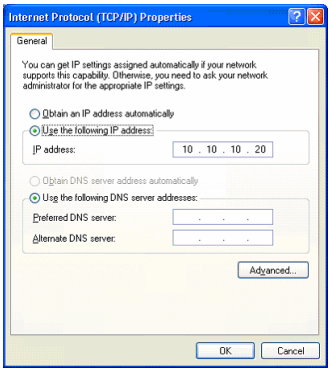
2.10 Move to the Security tab, and click the Advanced [custom settings] radio button under Security options. Then click the Settings button.


Advanced Security Settings
Data encryption:
Optional encryption (connect even if no encryption)
Logon security
Use Extensible Authentication Protocol (EAP)
Properties
Allow these protocols
Unencrypted password (PAP)
Shiva Password Authentication Protocol (SPAP)
Challenge Handshake Authentication Protocol (CHAP)
Microsoft CHAP (MS-CHAP)
Allow older MS-CHAP version for Windows 95 servers
Microsoft CHAP Version 2 (MS-CHAP v2)
For MS-CHAP based protocols, automatically use my Windows logon name and password (and domain if any)
OK
Cancel

2.11 Check the Allow older MS-CHAP version for Windows 95 servers box, and click the OK button.



2.12 Move to the Networking tab, and select PPP: Windows 95/98/NT4/2000 Internet for the dial-up server type. Then, check the Internet Protocol (TCP/IP) box, and click the Properties button.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
10 . 10 . 10 . 20
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

2.13 Click the Use the following IP address radio box, and enter the independent IP address starting from "10.10.10.20". Then, click the OK button.

NOTE: The same callback IP address entered above should be entered during the *Remote Monitoring* setup on the BASE system. The independent IP address used to identify the DVR system is needed to set up the various dial-up networking for the POST systems.

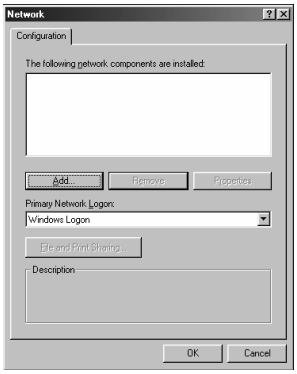
Dial-up Networking Setup for Windows 98 BASE System

1. Dial-up Networking Setup for Remote Access

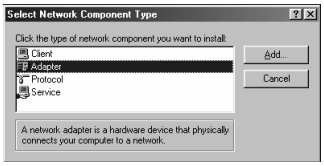
1.1 In the Windows mode, go to Start on the Task Bar, to Programs, to Accessories, and to Communications. If Dial-up Networking is listed, go to step 1.2.

NOTE: If Dial-up Networking is not listed, go to Start on the Task Bar, to Control Panel, to Add/Remove Programs and to *Windows Setup*. Check the *Communications* box and then click the *Details...* button below. In the Communications dialog box, check the *Dial-Up Networking* box and the *Dial-Up Server* box, and then click the *OK* button. Follow the Windows instructions for installing the necessary software. You can save your changes by clicking the *OK* button. Selecting *Cancel* exits the dialog box without saving the changes.

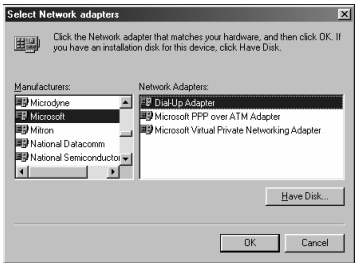
1.2 In the Windows mode, go to Start on the Task Bar, to Control Panel, and to Network.



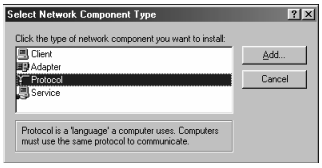
1.3 Under the Configuration tab in the Network dialog box, move to Primary Network Logon and select Windows Logon from the drop-down list. Then, click the Add... button to set up the adapter and protocol.



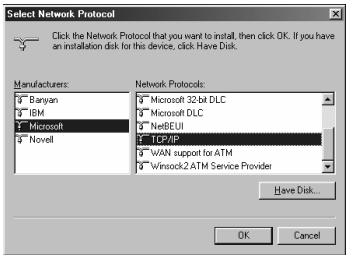
1.4 Click Adaptor and then click the Add... button.



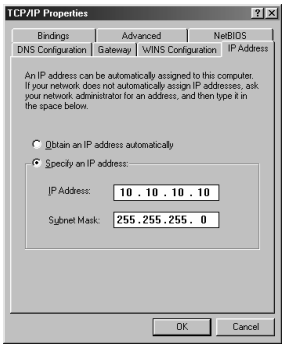
1.5 Click Microsoft from the Manufacturers and Dial-Up Adaptor for the Network Adaptors. Click the OK button to save the changes and return to the previous dialog box.



1.6 Click Protocol and click the Add... button.

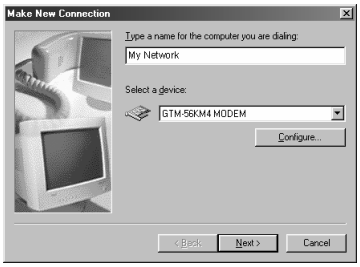


1.7 Select Microsoft from the Manufacturers and TCP/IP for the Network Protocols. Click the OK button to save the changes and return to the Network dialog box. In the Network dialog box, click TCP/IP in the list of network components, and then click the Properties button below.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
10 . 10 . 10 . 10
Subnet Mask:
255.255.255. 0
OK
Cancel

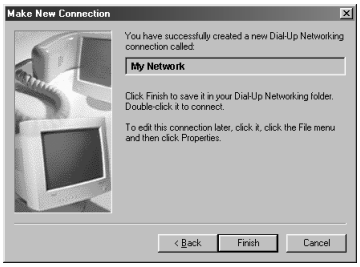
1.8 Under the IP Address tab, click the Specify an IP address radio button. Enter the IP address as "10.10.10.10" and the subnet mask as "255.255.255.0" in the text field beside IP Address and Subnet Mask. You can save your changes by clicking the OK button. If you select OK, you might need to allow the system to reboot. Selecting Cancel exits the dialog box without saving the changes.

1.9 Open My computer on the desktop, and select Dial-Up Networking. Then, click Make New Connection. If Dial-Up Networking is not listed, return to step 1.1.

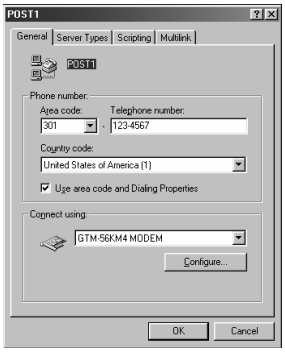


1.10 Enter "My Network" for the name of the POST DVR you are dialing, and select an installed modem from the drop-down list. Then, click the Next button.

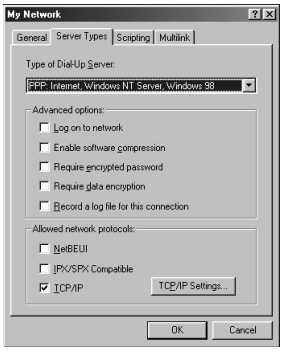
1.11 Enter the telephone number of the POST DVR you want to call, and click the Next button. Make sure to enter any extra numbers such as 9 or area code that are necessary to dial out.


Make New Connection
You have successfully created a new Dial-Up Networking connection called:
My Network
Click Finish to save it in your Dial-Up Networking folder. Double-click it to connect.
To edit this connection later, click it, click the File menu and then click Properties.
< Back
Finish
Cancel

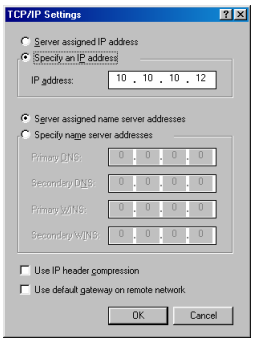
1.12 Click the Finish button. Then, click the newly created connection icon in the Dial-Up Networking window. Click the right mouse button, and move the cursor to Properties on the menu and click it.



1.13 Under the General tab, remove the check from the Use area code and Dialing Properties box when using an extension.



1.14 Move to the Server Types tab, and make sure that PPP: Internet, Windows NT Server, Windows 98 is selected as the Type of Dial-Up Server. Do not check any box for the Advanced options. Check only the TCP/IP box, and do not check other boxes for the Allowed network protocols. And then click the TCP/IP Settings… button.



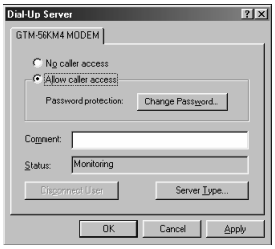
1.15 Click the Specify an IP address radio box, and enter "10.10.10.12". And then click the OK button. After you have changed the settings, you can save your changes by clicking the OK button. Selecting Cancel returns to the previous dialog box without saving the changes.

1.16 Double click the newly created connection icon, and try to connect.

2. Dial-up Networking Setup for Callback Function

NOTE: Follow the same procedures to set up the adaptor and protocol as used in steps 1.1 to 1.8 in the *Dial-up Networking Setup for Remote Access* section. Then, proceed to step 2.1 below.

2.1 Open My computer on the desktop, and select Dial-up Networking. Click the pull-down menu Connection, and move the cursor to Dial-Up Server and click it. If it is not listed, return to the step 1.1.



2.2 Click the Allow caller access radio box. Then, click the Server Type... button, and make sure that PPP: Internet, Windows NT Server, Windows 98 is selected for Type of Dial-Up Server. Do not check any box for Advanced options. You can save your changes by clicking the OK button. Selecting Cancel returns to the previous dialog box without saving the changes.

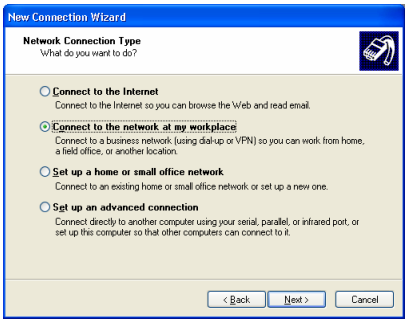
Dial-up Networking Setup for Windows XP BASE System

1. Dial-up Networking Setup for Remote Access

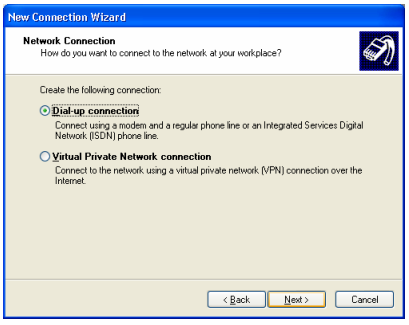
1.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open Network Connection. Double click Create a new connection.

New Connection Wizard
Welcome to the New Connection Wizard
This wizard helps you:
• Connect to the Internet.
• Connect to a private network, such as your workplace network.
• Set up a home or small office network.
To continue, click Next.
< Back
Next >
Cancel

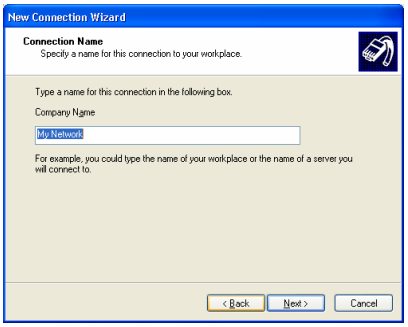
1.2 Click the Next button.


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

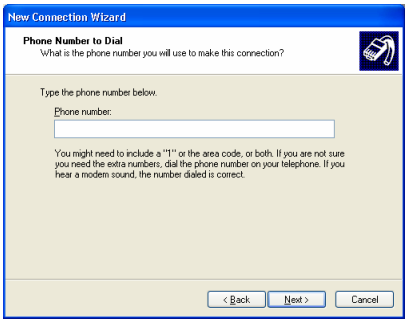
1.3 Click the Connect to the network at my workplace radio button, and click the Next button.


New Connection Wizard
Network Connection
How do you want to connect to the network at your workplace?
Create the following connection:
Dial-up connection
Connect using a modem and a regular phone line or an Integrated Services Digital Network (ISDN) phone line.
Virtual Private Network connection
Connect to the network using a virtual private network (VPN) connection over the Internet.
< Back
Next >
Cancel

1.4 Click the Dial-up connection radio button, and click the Next button.


New Connection Wizard
Connection Name
Specify a name for this connection to your workplace.
Type a name for this connection in the following box.
Company Name
My Network
For example, you could type the name of your workplace or the name of a server you will connect to.
< Back
Next >
Cancel

1.5 Enter "My Network" for the Connection Name, and click the Next button.


New Connection Wizard
Phone Number to Dial
What is the phone number you will use to make this connection?
Type the phone number below.
Phone number:
You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.
< Back
Next >
Cancel

1.6 Do not enter any telephone number for the Phone number, and click the Next button.

New Connection Wizard
Completing the New Connection Wizard
You have successfully completed the steps needed to create the following connection:
company
• Share with all users of this computer
The connection will be saved in the Network Connections folder.
Add a shortcut to this connection to my desktop
To create the connection and close this wizard, click Finish.
< Back
Finish
Cancel

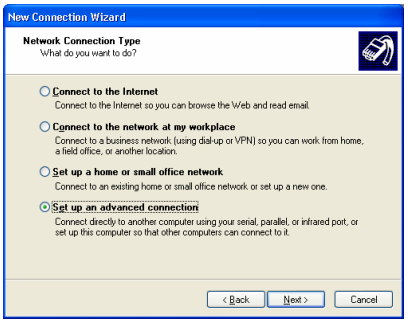
1.7 Click the Finish button. Double click the newly created connection icon after finishing the new connection wizard. The Connect Dial-up Connection dialog box appears. The instructions after this step are almost identical to Windows 2000. Go to step 1.7 in the Dial-up Networking Setup for Windows 2000 BASE system section, and follow the instructions.

2. Dial-up Networking Setup for Callback Function

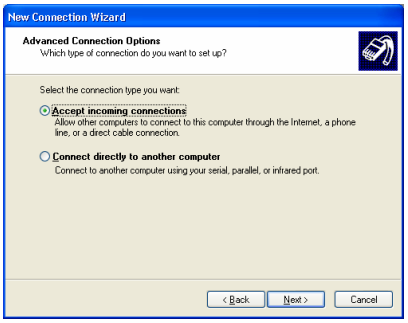
2.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open Network Connection. Double click Create a new connection.

New Connection Wizard
Welcome to the New Connection Wizard
This wizard helps you:
• Connect to the Internet.
• Connect to a private network, such as your workplace network.
• Set up a home or small office network.
To continue, click Next.
< Back
Next >
Cancel

2.2 Click the Next button.


New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

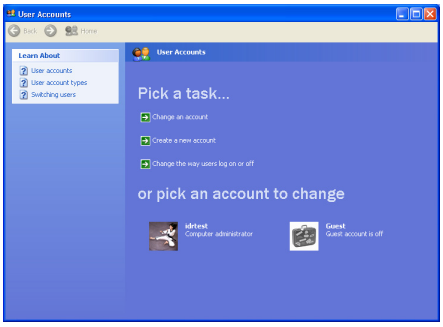
2.3 Click the Set up an advanced connection radio box, and click the Next button.


New Connection Wizard
Advanced Connection Options
Which type of connection do you want to set up?
Select the connection type you want:
Accept incoming connections
Allow other computers to connect to this computer through the Internet, a phone line, or a direct cable connection.
Connect directly to another computer
Connect to another computer using your serial, parallel, or infrared port.
< Back
Next >
Cancel

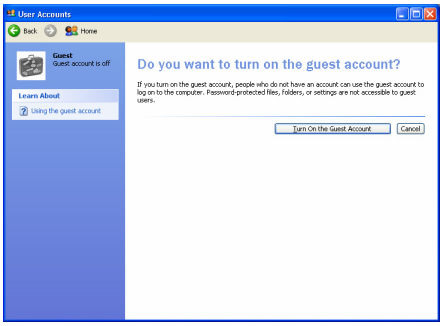
2.4 Click Accept incoming connections, and click the Next button. The instructions after this step are almost identical to Windows 2000. Go to step 2.3 in the Dial-up Networking Setup for Windows 2000 BASE system section, and follow the instructions.

3. Account Permission in Windows XP

3.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open the User Accounts.



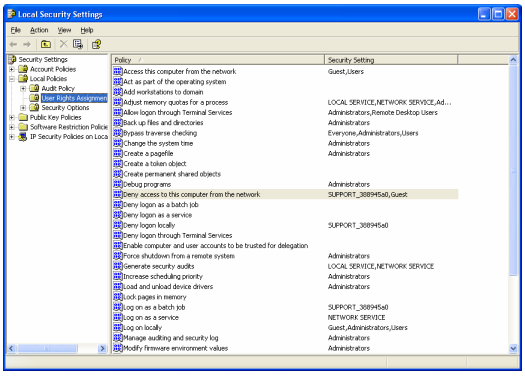
3.2 Click the Guest account icon if it displays Guest account is off.


User Accounts
Back
Home
Guest
Guest account is off
Learn About
Using the guest account
Do you want to turn on the guest account?
If you turn on the guest account, people who do not have an account can use the guest account to log on to the computer. Password-protected files, folders, or settings are not accessible to guest users.
Turn On the Guest Account
Cancel

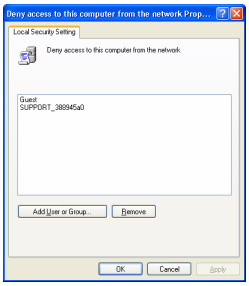
3.3 Turn on the guest account by clicking the Turn On the Guest Account button.

NOTE: Following steps are for the Windows XP Professional.

3.4 Go to the Control Panel, and to the Administrative Tools. Then, open the Local Security Policy.



3.5 Go to the Security Settings, then to the Local Policies, and then to the User Rights Assignment. If there is "Guest" under the Deny access to this Computer from the network item, select the Properties after clicking the right mouse button on the target string to open its properties dialog box.

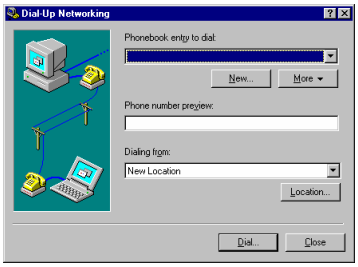


3.6 Permit the guest access by selecting the Guest and then clicking the Remove button.

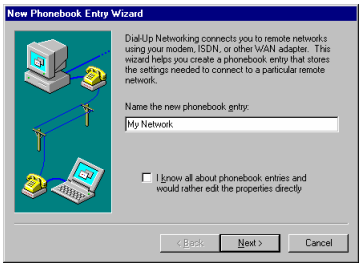
Dial-up Networking Setup for Windows NT BASE System

1. Dial-up Networking Setup for Remote Access

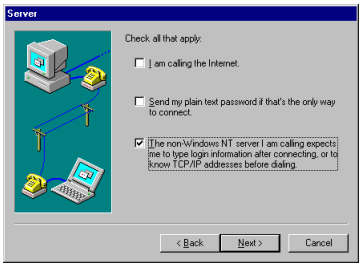
1.1 In the Windows mode, open My computer on the desktop and select Dial-Up Networking.



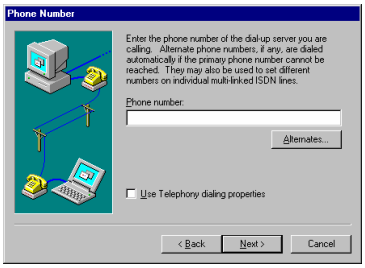
1.2 Click the New… button to add a phonebook entry to dial.


New Phonebook Entry Wizard
Dial-Up Networking connects you to remote networks using your modem, ISDN, or other WAN adapter. This wizard helps you create a phonebook entry that stores the settings needed to connect to a particular remote network.
Name the new phonebook entry:
My Network
I know all about phonebook entries and would rather edit the properties directly
< Back
Next >
Cancel

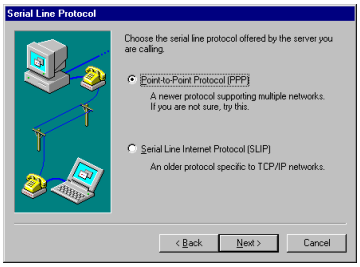
1.3 Enter “My Network” under Name the new phonebook entry, and click the Next button.


Server
Check all that apply:
I am calling the Internet.
Send my plain text password if that's the only way to connect.
The non-Windows NT server I am calling expects me to type login information after connecting, or to know TCP/IP addresses before dialing.
< Back
Next >
Cancel

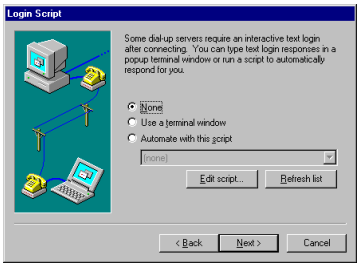
1.4 Check the third box, and click the Next button.


Phone Number
Enter the phone number of the dial-up server you are calling. Alternate phone numbers, if any, are dialed automatically if the primary phone number cannot be reached. They may also be used to set different numbers on individual multi-linked ISDN lines.
Phone number:
Alternates...
Use Telephony dialing properties
< Back
Next >
Cancel

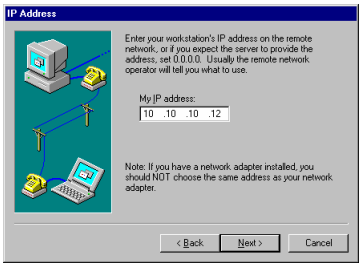
1.5 Do not enter any telephone number for the Phone number, and click the Next button.


Serial Line Protocol
Choose the serial line protocol offered by the server you are calling.
Point-to-Point Protocol (PPP)
A newer protocol supporting multiple networks. If you are not sure, try this.
Serial Line Internet Protocol (SLIP)
An older protocol specific to TCP/IP networks.
< Back
Next >
Cancel

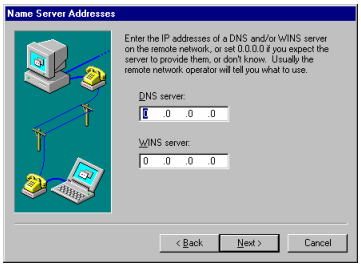
1.6 Click the Point-to-Point Protocol (PPP) radio box for the serial line protocol, and click the Next button.


Login Script
Some dial-up servers require an interactive text login after connecting. You can type text login responses in a popup terminal window or run a script to automatically respond for you.
None
Use a terminal window
Automate with this script
(none)
Edit script...
Refresh list
< Back
Next >
Cancel

1.7 Do not change the default setting value (None). Click the Next button.


IP Address
Enter your workstation's IP address on the remote network, or if you expect the server to provide the address, set 0.0.0.0. Usually the remote network operator will tell you what to use.
My IP address:
10 .10 .10 .12
Note: If you have a network adapter installed, you should NOT choose the same address as your network adapter.
< Back
Next >
Cancel

1.8 Enter "10.10.10.12" as My IP address, and click the Next button.

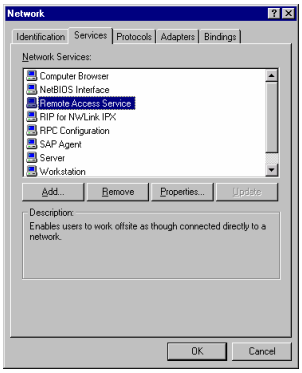

Name Server Addresses
Enter the IP addresses of a DNS and/or WINS server on the remote network, or set 0.0.0.0 if you expect the server to provide them, or don't know. Usually the remote network operator will tell you what to use.
DNS server:
WINS server:
< Back
Next >
Cancel

1.9 Do not change the default setting values for the Name Server Addresses, and click the Next button.

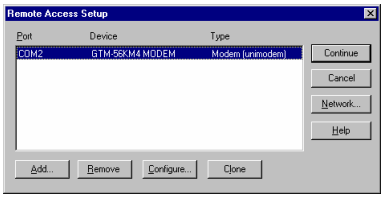
1.10 Finish the new phonebook entry, and close the dialog box by clicking the Finish button.

2. Dial-up Networking Setup for Callback Function

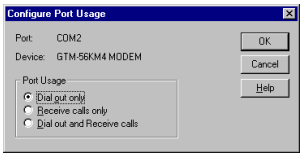
2.1 In the Windows mode, move the cursor on Network Neighborhood and click the right mouse button. Select Properties from the menu.



2.2 Move to the Services tab, and click Remote Access Service. Then, click the Properties… button. If there is no Remote Access Service, add it by clicking the Add… button.

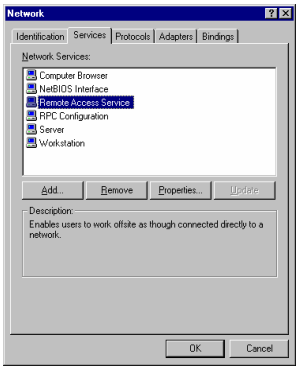


2.3 Select an installed modem to use for dial-up connection, and click the Configure… button.

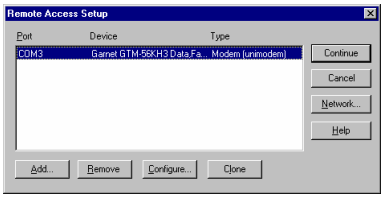


2.4 Click the Dial out only radio button for the port usage, and click the OK button.

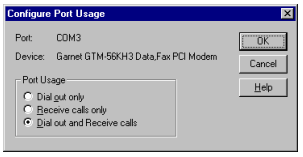
2.5 In the Windows mode, move the cursor to Network Neighborhood and click the right mouse button. Select Properties from the menu. If there is no Remote Access Service, add it by clicking the Add… button.



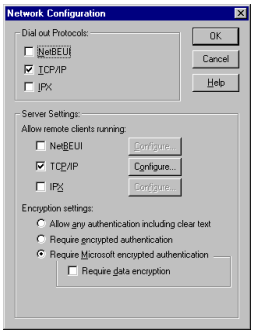
2.6 Move to the Services tab, and click Remote Access Service. Then, click the Properties… button.



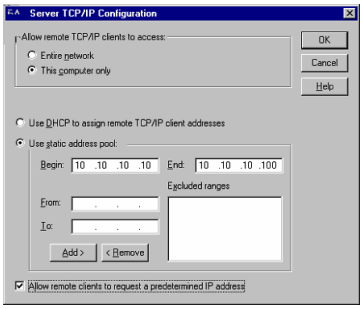
2.7 Select an installed modem to use for dial-up connection, and click the Configure… button.



2.8 Click the Dial out and Receive calls radio button for the port usage, and click the OK button to save the change and return to the Remote Access Setup dialog box. Then, click the Network… button in the Remote Access Setup dialog box.



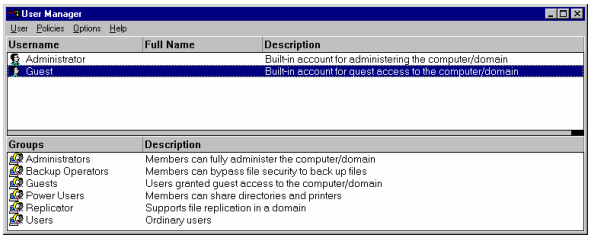
2.9 Check the TCP/IP box for Dial out Protocols, and check TCP/IP for Allow remote clients running. Then, click the Configure… button.



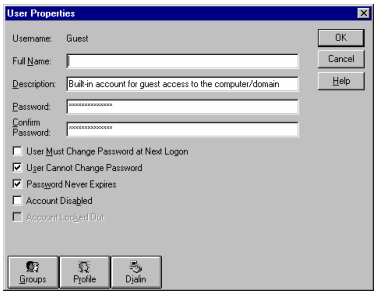
2.10 Click the Use static address pool radio button, and set the IP range from "10.10.10.10"(Begin) to the highest IP address(To) among the callback IP addresses set on the POST systems. Check the Allow remote client to request a predetermined IP address box, and then click the OK button.

NOTE: The callback IP address on the POST system must be within the IP range set above.

2.11 In the Windows mode, go to Start on the Task Bar, to Programs, to Administrative Tools (common) and to User Manager.

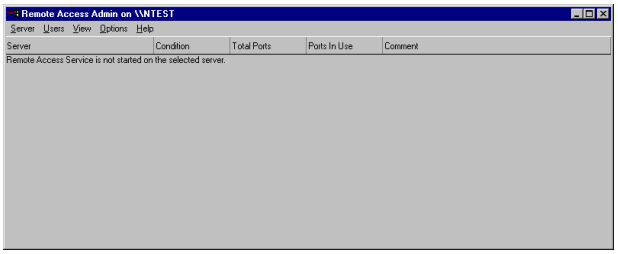


2.12 Double click Guest under the Username.

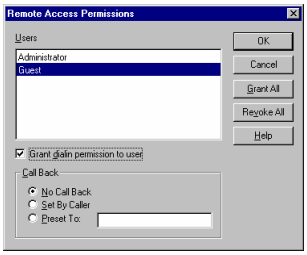


2.13 Remove the check from the Account Disabled box, and then click the OK button.

2.14 In the Windows mode, go to Start on the Task Bar, to Programs, to Administrative Tools (common) and to Remote Access Admin.

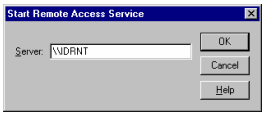


2.15 Click the Users pull-down menu, and select Permissions from the menu.

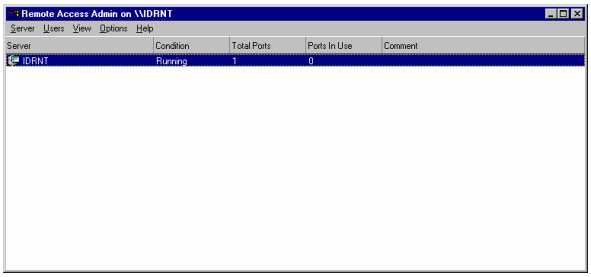


2.16 Select Guest for the Users, and check the Grant dialin permission to user box. Then, click the OK button to save the changes and return to the previous dialog box. Select Cancel to exit the dialog box without saving the changes.

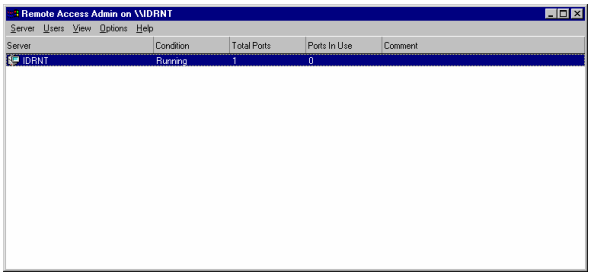
2.17 Click the Server pull-down menu in the Remote Access Admin dialog box, and select Start Remote Access Server from the menu.



2.18 Enter the server name, and then click the OK button.


Remote Access Admin on \\IDRNT
Server Users View Options Help
Server Condition Total Ports Ports In Use Comment
IDRNT Running 1 0

2.19 Make sure that the Remote Access Server is running.


Remote Access Admin on \\IDRNT
Server Users View Options Help
Server Condition Total Ports Ports In Use Comment
IDRNT Running 1 0

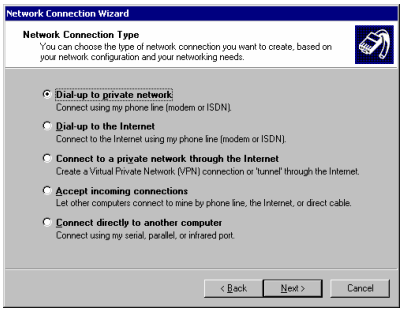
Dial-up Networking Setup for Windows 2000 BASE System

1. Dial-up Networking Setup for Remote Access

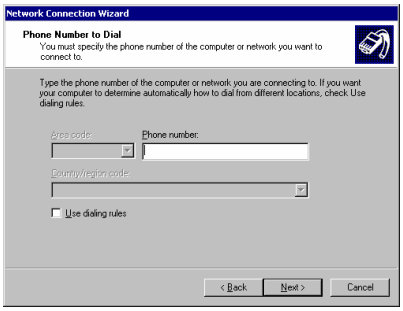
1.1 In the Windows mode, go to Start on the Task Bar, to Settings, and to Control panel. Then open the Network and Dial-up Connection. Double click Make New Connection.

Network Connection Wizard
Welcome to the Network Connection Wizard
Using this wizard you can create a connection to other computers and networks, enabling applications such as e-mail, Web browsing, file sharing, and printing.
To continue, click Next.
< Back
Next >
Cancel

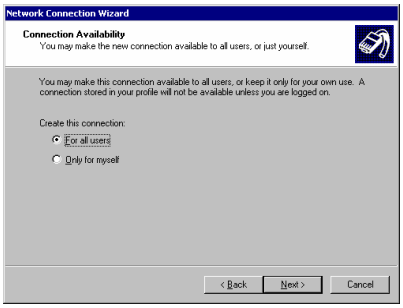
1.2 Click the Next button.


Network Connection Wizard
Network Connection Type
You can choose the type of network connection you want to create, based on your network configuration and your networking needs.
Dial-up to private network
Connect using my phone line (modem or ISDN).
Dial-up to the Internet
Connect to the Internet using my phone line (modem or ISDN).
Connect to a private network through the Internet
Create a Virtual Private Network (VPN) connection or 'tunnel' through the Internet.
Accept incoming connections
Let other computers connect to mine by phone line, the Internet, or direct cable.
Connect directly to another computer
Connect using my serial, parallel, or infrared port.
< Back
Next >
Cancel

1.3 Click the Dial-up to private network radio button, and click the Next button.


Network Connection Wizard
Phone Number to Dial
You must specify the phone number of the computer or network you want to connect to.
Type the phone number of the computer or network you are connecting to. If you want your computer to determine automatically how to dial from different locations, check Use dialing rules.
Area code:
Phone number:
Country/region code:
Use dialing rules
< Back
Next >
Cancel

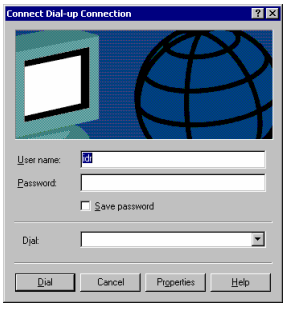
1.4 Do not enter any telephone number for the Phone number, and click the Next button.


Network Connection Wizard
Connection Availability
You may make the new connection available to all users, or just yourself.
You may make this connection available to all users, or keep it only for your own use. A connection stored in your profile will not be available unless you are logged on.
Create this connection:
For all users
Only for myself
< Back
Next >
Cancel

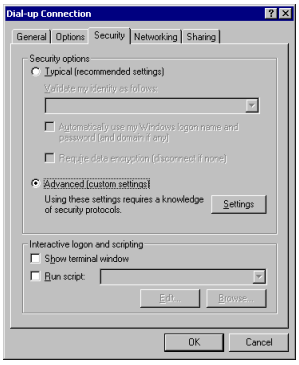
1.5 You may make the dial-up connection available to all users, or keep it for your own use only. Click For all users or Only for myself, and click the Next button.

Network Connection Wizard
Completing the Network Connection Wizard
Type the name you want to use for this connection:
My Network
To create this connection and save it in the Network and Dial-up Connections folder, click Finish.
To edit this connection in the Network and Dial-up Connections folder, select it, click File, and then click Properties.
Add a shortcut to my desktop
< Back
Finish
Cancel

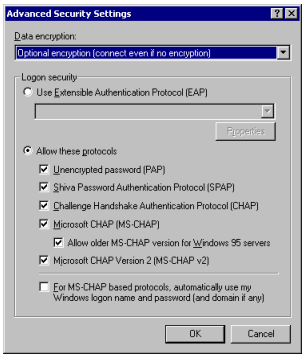
1.6 Enter "My Network" as the name for this connection, and click the Finish button. Double click the newly created connection icon after finishing the network connection wizard.



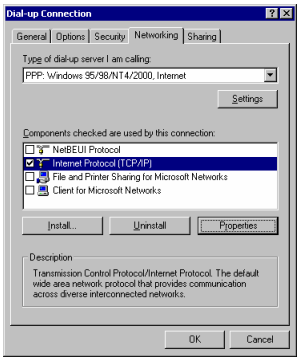
1.7 Click the Properties button.



1.8 Move to the Security tab, and click the Advanced [custom settings] radio button for the Security options. Then, click the Settings button.

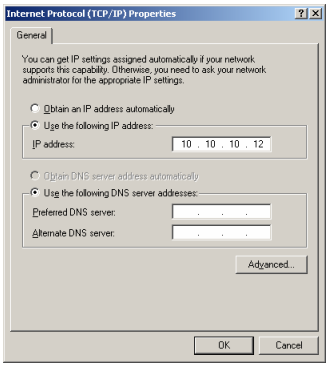

Advanced Security Settings
Data encryption:
Optional encryption (connect even if no encryption)
Logon security
Use Extensible Authentication Protocol (EAP)
Properties
Allow these protocols
Unencrypted password (PAP)
Shiva Password Authentication Protocol (SPAP)
Challenge Handshake Authentication Protocol (CHAP)
Microsoft CHAP (MS-CHAP)
Allow older MS-CHAP version for Windows 95 servers
Microsoft CHAP Version 2 (MS-CHAP v2)
For MS-CHAP based protocols, automatically use my Windows logon name and password (and domain if any)
OK
Cancel

1.9 Check the Allow older MS-CHAP version for Windows 95 servers box, and click the OK button.



1.10 Select PPP: Windows 95/98/NT4/2000, Internet from a drop-down list for the type of dial-up server, and click the Settings button. Remove the check from the Enable software compression box, and click the OK button to save the change and return to the Dial-up Connection dialog box.

1.11 Check the Internet Protocol(TCP/IP) box for the connection components, and click the Properties button.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
10 . 10 . 10 . 12
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

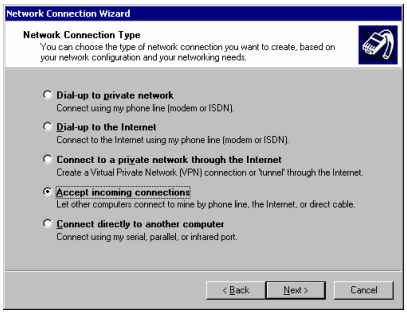
1.12 Click the Use the following IP address radio button, and enter "10.10.10.12" as the IP address. Then click the OK button. After finishing all settings, open Connect Dial-up Connection by double clicking it. Enter "guest" for the User name, and click the Dial button to connect to the remote system.

2. Dial-up Networking Setup for Callback Function

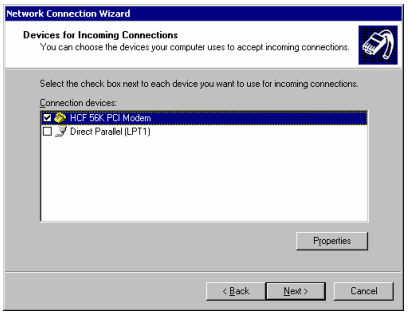
2.1 In the Windows mode, go to Start on the Task Bar, to Settings, and to Control panel. Then, open Network and Dial-up Connection. Double click Make New Connection.

Network Connection Wizard
Welcome to the Network Connection Wizard
Using this wizard you can create a connection to other computers and networks, enabling applications such as e-mail, Web browsing, file sharing, and printing.
To continue, click Next.
< Back
Next >
Cancel

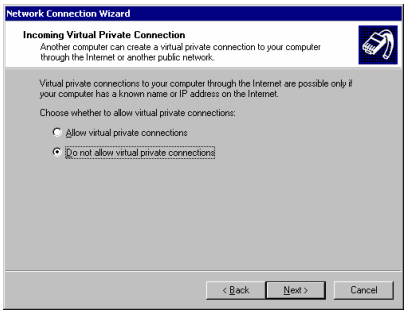
2.2 Click the Next button.


Network Connection Wizard
Network Connection Type
You can choose the type of network connection you want to create, based on your network configuration and your networking needs.
Dial-up to private network
Connect using my phone line (modem or ISDN).
Dial-up to the Internet
Connect to the Internet using my phone line (modem or ISDN).
Connect to a private network through the Internet
Create a Virtual Private Network (VPN) connection or "tunnel" through the Internet.
Accept incoming connections
Let other computers connect to mine by phone line, the Internet, or direct cable.
Connect directly to another computer
Connect using my serial, parallel, or infrared port.
< Back
Next >
Cancel

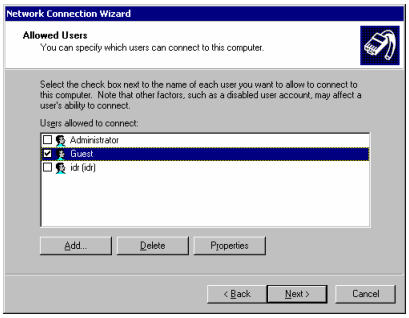
2.3 Click the Accept incoming connections radio box, and click the Next button.


Network Connection Wizard
Devices for Incoming Connections
You can choose the devices your computer uses to accept incoming connections.
Select the check box next to each device you want to use for incoming connections.
Connection devices:
HCF 56K PCI Modem
Direct Parallel (LPT1)
Properties
< Back
Next >
Cancel

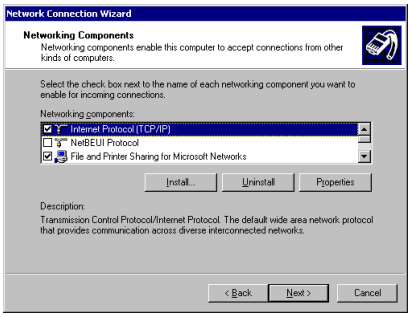
2.4 Select an installed modem to use, and click the Next button.


Network Connection Wizard
Incoming Virtual Private Connection
Another computer can create a virtual private connection to your computer through the Internet or another public network.
Virtual private connections to your computer through the Internet are possible only if your computer has a known name or IP address on the Internet.
Choose whether to allow virtual private connections:
Allow virtual private connections
Do not allow virtual private connections
< Back
Next >
Cancel

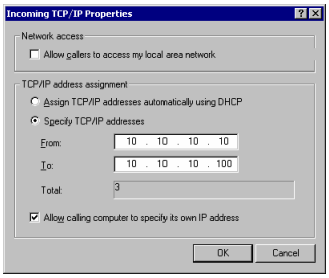
2.5 Click the Do not allow virtual private connections radio box, and click the Next button.


Network Connection Wizard
Allowed Users
You can specify which users can connect to this computer.
Select the check box next to the name of each user you want to allow to connect to this computer. Note that other factors, such as a disabled user account, may affect a user's ability to connect.
Users allowed to connect:
Administrator
Guest
idr (idr)
Add...
Delete
Properties
< Back
Next >
Cancel

2.6 Check the Guest box for the users allowed to connect, and click the Next button.

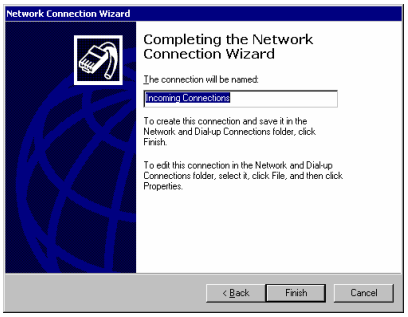

Network Connection Wizard
Networking Components
Networking components enable this computer to accept connections from other kinds of computers.
Select the check box next to the name of each networking component you want to enable for incoming connections.
Networking components:
Internet Protocol (TCP/IP)
NetBEUI Protocol
File and Printer Sharing for Microsoft Networks
Install...
Uninstall
Properties
Description:
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
< Back
Next >
Cancel

2.7 Check only the Internet Protocol (TCP/IP) box. Do not check other boxes for the networking components. Then click the Properties button. If there is no Internet Protocol (TCP/IP) option, click the Install… button, and add it by selecting Protocol and clicking the Add button.



2.8 Click the Specify TCP/IP addresses radio box, and set the IP range from "10.10.10.10"(From) to the highest IP address(To) among the callback IP addresses set on the POST systems. Check the Allow calling computer to specify its own IP address box, and then click the OK button.

NOTE: The callback IP address on the POST system must be within the IP range set above.


Network Connection Wizard
Completing the Network Connection Wizard
The connection will be named:
Incoming Connections
To create this connection and save it in the Network and Dial-up Connections folder, click Finish.
To edit this connection in the Network and Dial-up Connections folder, select it, click File, and then click Properties.
< Back
Finish
Cancel

2.9 Enter the name for the connection, and finish the network connection wizard by clicking the Finish button.

Dial-Up Networking Troubleshooting

Problem: Dial-up networking disconnects in SmartGuard or in SmartSearch.

Solution: Sometimes dial-up networking disconnects because of the condition of the modem or telephone lines. Close the DVR, access the Windows mode, and follow these instructions to test dial-up networking.

1. Go to My Network under Windows Explorer/Dial-Up Networking. Click the right mouse button and select Properties.
2. Under the General tab, make sure the correct modem is selected under Connect using.
3. Under the Server Types tab, make sure that PPP: Internet, Windows NT Server, Windows 98 is selected under Type of Dial-Up server box, and that the box next to TCP/IP is checked under Allowed network protocols. Then, click OK if everything is correct.
4. Double click My Network to open the dialog box. Enter the telephone number for the POST system and check if it is connected.
5. If the POST system is connected properly, try to access the remote site using SmartGuard or SmartSearch.

NOTE: Check the instructions again in Appendix 4 – Network Setup (Modem) if the POST system is not connected.

Problem: The error message *The line is busy* has appeared even though the POST system is not using the telephone.

Solution: Sometimes Windows refuses the remote connection even when the telephone line is not busy. Try to connect again.

Problem: I cannot hear dial tone.

Solution: Sometimes the modem cannot access a dial tone if your telephone is an extension. Follow the instructions below and then try to connect again.

1. Go to My Network under Windows Explorer/Dial-Up Networking, click the right mouse button and select Properties.
2. Click General/Configure/Connection tab.
3. Uncheck the box next to Wait for dial tone before dialing.

Problem: The POST system does not answer a telephone call.

Solution: Under Windows Explorer/Dial-Up Networking, go to the pull-down menu Connection and then to Dial-Up Server. Check Allow caller access.

Problem: After the POST system receives calls, the network disconnects.

Solution: Under Windows Explorer/Dial-Up Networking, go to the pull-down menu Connection and then to Dial-Up Server. Click Server Types... and check if PPP: Internet, Windows NT Server, Windows 98 is selected under Type of dial-Up Server.

Problem: The POST system calls back the BASE system, however the connection fails.

Solution: Make sure that the dial-up networking is installed on the BASE system. If it is not installed, refer to the Appendix 4 – Network Setup (Modem) for the instructions on setting up the dial-up networking. If the connection fails although it is installed, make sure the IP address for dial-up connection of the BASE system is "10.10.10.10".

Appendix 5 — WebGuard

Overview

The WebGuard, remote web monitoring program, allows users to access the remote systems and monitor live video images on it through an Internet web browser any time from virtually anywhere.

Features

- Remote monitoring live video images by using a web browser
- Accessing up to 32 remote systems
- 32-channel live monitoring
- Safe program with VeriSign authentication
- PTZ control and various image enhancement functions

WebGuard Browser

- Monitor: Displays live video images transmitted in real-time from the remote site.
- Power Button: Quits the program
- Title Bar: Displays the ID or the title of the location where the remote system is installed.
- Camera Button: Selects a camera and displays the image of a target camera. Click the left or right arrows to display the previous or next camera group.

NOTE: The camera button illuminates when that camera is displayed on the screen.

- Screen Button: Every time this button is clicked, the screen mode switches (single-screen, quad, 3x3, 4x4, 5x5 and 1+32 modes).
- PTZ Control Button: Controls pan, tilt, zoom, iris and focus.
- Screen Adjust Button: Adjust brightness, contrast, hue and saturation.

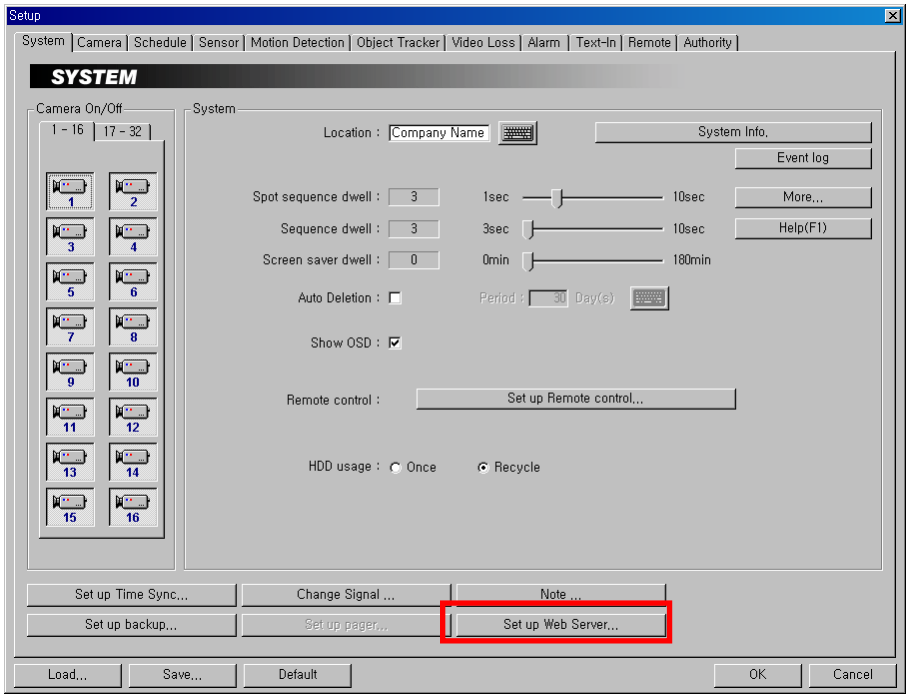
How to connect WebGuard

Start the Web browser (Internet Explorer) in your local PC and enter the IP address of the DVR in the location/address field. Get the IP address from the network administrator. WebGuard runs automatically.

NOTE: WebGuard only works with Microsoft Internet Explorer and will NOT work with Netscape.

Web Server Setup

The DVR includes a personal web server. If you do not want to run a web server, turn it off by clicking the Set up Web Server... button under the System tab of the Setup dialog box in the SmartGuard mode and follow the instructions.

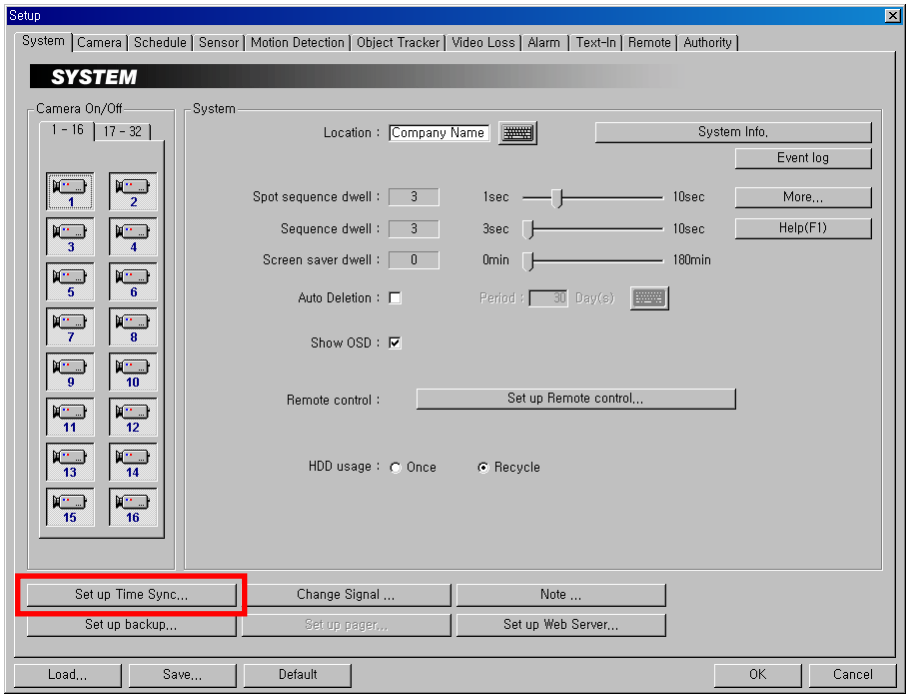


Appendix 6 — Time Synchronization

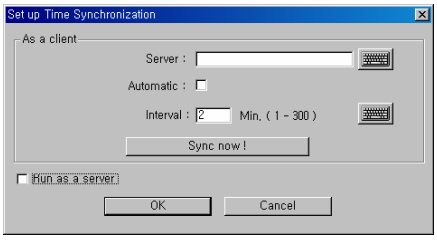
In general, each DVR system may have a different time because of the accuracy of its internal clock. The Time Synchronization function synchronizes the time between POST systems and any time server when they are networked. Any POST system or BASE system can run as a time server. Also you can use a standard time server provided by each country.

NOTE: Visit http://www.eecis.udel.edu/~mills/ntp/clock1.htm for finding a standard time server.

SmartGuard Setup – System



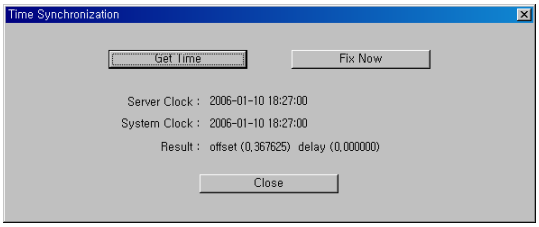
Click the Set up Time Sync… button.



Move to Server, and enter the IP address of target time server. If you want to synchronize the time between the POST system and a time server automatically, check the Automatic box; otherwise, synchronize the time manually by clicking the Sync now… button. The user can set up the synchronization interval from 1 to 300 minutes.

NOTE: When selecting *Automatic* (automatic time synchronization), the system time will synchronize with the server time at a fixed time every hour. If there is more than a 0.5 second gap between the system and the server, the system time will be changed, and the event will be recorded on the system log if there is more than a 1.0 second gap.

Check the Run as a server box when you want the DVR to run as a time server.

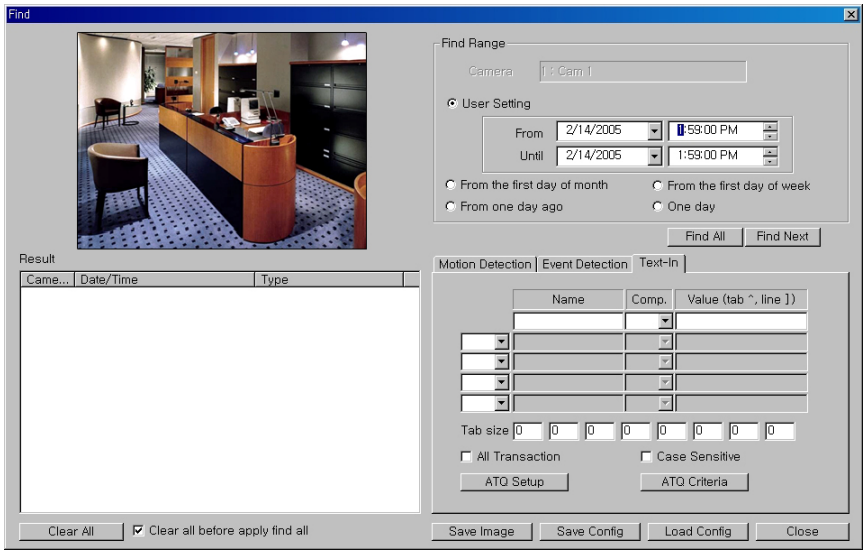


Click the Get Time button to display the time information of the target server, and click the Fix Now button to change the system time to the server time. If the server time is earlier than the current DVR time, you must delete images dated later than the server time. If you do not delete images, the time cannot be reset.

NOTE: When setting up time synchronization for the first time, set the time between the system and the time server manually because the system and the server might have wide time gap.

Appendix 7 — Text-In Query

Finding Text-In



Set up the find condition of text-in.

- Name: Enter the text to find.
- Comp: Enter the comparison operator.
- Value: Enter the comparison value.

NOTE: The tab and line can be used for more specific search of the text-in data. Use a symbol '^' indicating the location of each individual category, and ']' indicating the line where the category is located. See the following examples for details.

- Tab size: Enter the tab size. Up to eight tabs can be set.
- All Transaction: Check this box to find all transaction results within established find conditions.
- Case Sensitive: Check this box to distinguish between capital letter and small letters entered in the Name box.

NOTE: Refer to the *SmartSearch – Find* section for setting up ATQ (Automatic Transaction Query).

Query Example I

```
         1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678901234567890

    Item        Unit price      Qty        amount
=================================================
 Coke          | $     2.20 |      1(s)  | $       2.20
 Fanta         | $     2.20 |      1(s)  | $       2.20
 Hotdog        | $     3.50 |      3(s)  | $      10.50
 Pepsi         | $     1.95 |      1(s)  | $       1.95
=================================================
                               total : $       16.85
Thank you~~
```

In the above text-in data, you can find that the comparison value is located at 17th (Unit price, $ mark will be ignored automatically), 28th (Qty) and 40th (amount) characters (including spaces) from the left. In this case, you can enter "17", "28" and "40" in each Tab size box, and enter the tab symbol "^" in the Value box (^ for Unit price, ^^ for Qty, and ^^^ for amount).

For example, if you want to search for Coke with a Qty(Quantity) of more than 1 and Hotdog with an amount totaling over $8, the following find condition can be set.

```
              Coke   > ^^1
and    Hotdog   > ^^^8
```

Query Example II

```
         1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678901234567890


    Item        Unit price      Qty        amount
=================================================
 Coke          | $    2.20 |     1(s)
                 $       2.20
 Fanta         | $    2.20 |     1(s)
                                          $       2.20
 Hotdog        | $    3.50 |     3(s)
                                          $      10.50
 Pepsi         | $    1.95 |     1(s)
                                          $       1.95
=================================================
                              total : $        16.85
Thank you~~
```

In the above text-in data, you can find that the comparison value is located at 17th (Unit price, $ mark will be ignored automatically), 28th (Qty) and 40th (amount) characters (including spaces) from the left, but the value of amount category is located at the different line from Item. In this case, you can enter "17", "28" and "40" in each Tab size box, and enter the tab symbol "^" and line symbol "]" in the Value box (^ for Unit price, ^^ for Qty, and ^^^ for amount /] for the next line).

For example, if you want to search for Coke with a Qty(Quantity) of more than 1 and Hotdog with an amount totaling over $8, the following find condition can be set.

```
              Coke   > ^^1
and    Hotdog   > ]^^^8
```

Appendix 8 — RAS Mobile

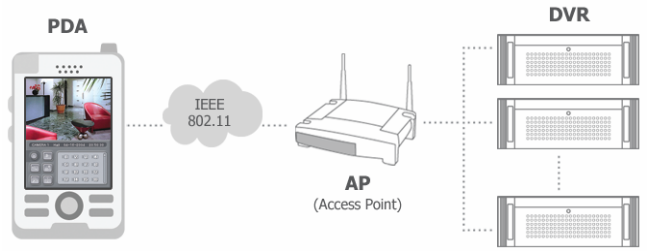
The RAS Mobile program is the remote monitoring software that allows you to monitor remote sites on the WinCE based PDA. The RAS Mobile offers remote monitoring of live camera images, image adjustment and PTZ control. Up to 16 users can connect the DVR at the same time (the number of users varies according to the network conditions).

NOTE: When selecting the *Network Remote Control* for the user's authorization and setting "8020" for the network port number during the POST system setup, you can access to the remote POST system using the RAS mobile program. Refer to the SmartGuard Setup – *Setting Up the System* and *Setting Up the Authority* sections for details.

System Requirements

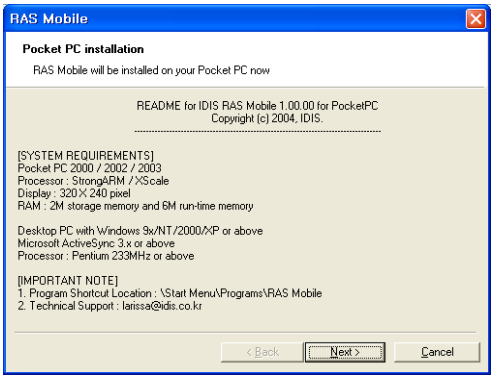
- Operating Systems: Pocket PC Microsoft Windows 2002 or above
- Processor: StrongARM / Xscale
- Display: 320x240 pixel
- RAM: 2M storage memory and 6M run-time memory
- Wireless LAN: Support IEEE 802.11
- Desktop PC with Microsoft Windows 9X / NT / 2000 / XP or above
- Microsoft ActiveSync 3x or above
- Processor: Pentium 233MHz or above

System Diagram

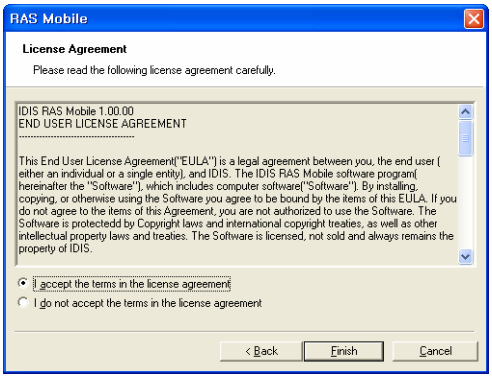


RAS Mobile Installation

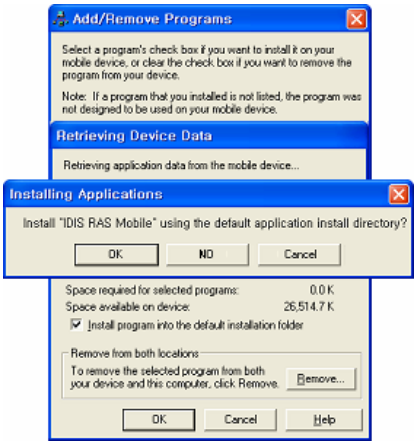
1. Install the Microsoft ActiveSync program on the PC, and connect it with the PDA.
2. Run the RAS_Mobile_Setup.exe file.
3. When the following dialog box appears, click Next.


RAS Mobile
Pocket PC installation
RAS Mobile will be installed on your Pocket PC now
README for IDIS RAS Mobile 1.00.00 for PocketPC
Copyright (c) 2004, IDIS.
[SYSTEM REQUIREMENTS]
Pocket PC 2000 / 2002 / 2003
Processor : StrongARM / XScale
Display : 320 X 240 pixel
RAM : 2M storage memory and 6M run-time memory
Desktop PC with Windows 9x/NT/2000/XP or above
Microsoft ActiveSync 3.x or above
Processor : Pentium 233MHz or above
[IMPORTANT NOTE]
1. Program Shortcut Location : \Start Menu\Programs\RAS Mobile
2. Technical Support : larissa@idis.co.kr
< Back
Next >
Cancel

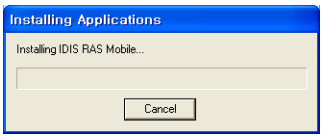
4. When the following dialog box appears, select I accept the terms in the license agreement, and click Finish.


RAS Mobile
License Agreement
Please read the following license agreement carefully.
IDIS RAS Mobile 1.00.00
END USER LICENSE AGREEMENT
This End User License Agreement("EULA") is a legal agreement between you, the end user (either an individual or a single entity), and IDIS. The IDIS RAS Mobile software program(hereinafter the "Software"), which includes computer software("Software"). By installing, copying, or otherwise using the Software you agree to be bound by the items of this EULA. If you do not agree to the items of this Agreement, you are not authorized to use the Software. The Software is protectedd by Copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The Software is licensed, not sold and always remains the property of IDIS.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
< Back
Finish
Cancel

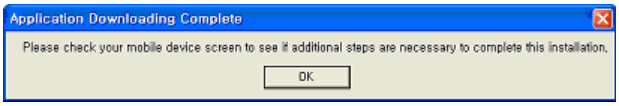
5. When the following dialog box appears, select Yes.


Add/Remove Programs
Select a program's check box if you want to install it on your mobile device, or clear the check box if you want to remove the program from your device.
Note: If a program that you installed is not listed, the program was not designed to be used on your mobile device.
Retrieving Device Data
Retrieving application data from the mobile device...
Installing Applications
Install "IDIS RAS Mobile" using the default application install directory?
OK
NO
Cancel
Space required for selected programs: 0.0 K
Space available on device: 26,514.7 K
Install program into the default installation folder
Remove from both locations
To remove the selected program from both your device and this computer, click Remove.
Remove...
OK
Cancel
Help

6. The progress bar shows the installation progress.



7. When the following dialog box appears, selecting OK completes the installation.


Application Downloading Complete
Please check your mobile device screen to see if additional steps are necessary to complete this installation.
OK

8. After installing the RAS Mobile software, the program will be installed on the Windows\RAS Mobile folder, and you will find the Mobile RAS icon on the desktop. Double click the icon or run the Windows\RAS Mobile\WinCERAS.exe file. Once you run the program for the first time, the PDA soft reset one time.

NOTE: To remove the program, select *Start* on the Task Bar on the PDA. Go to *Control panel* → *Add/Delete programs* → *IDIS RAS Mobile* in order. Clicking the *Delete* button uninstalls the program.

RAS Mobile Main GUI

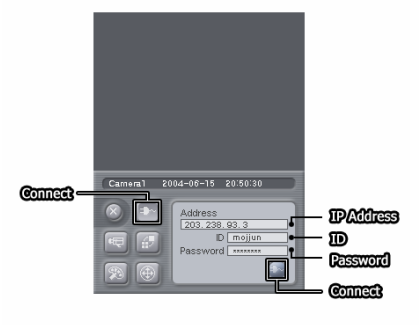
The Graphical User Interface (GUI) of the RAS Mobile is as shown below, and the description of each Main Menu buttons follows.

Main Menu Buttons

- Disconnect Button: Disconnects from the current connection and closes WinCE RAS program.
- Connect Button: Connects to the remote sites.
- Camera Button: Selects cameras to be viewed.
- Screen Mode Button: Switches the screen mode (single screen, quad and full screen).
- Image Adjust Button: Allows adjustment of viewed images (contrast, brightness, saturation, and hue).
- PTZ Control Button: Controls pan, tilt and zoom of the camera at the remote site, and controls presets.

Connecting to the remote sites

To connect to the remote sites, select the Connect button in the Main Menu. And then enter the IP address of the target site, ID and Password. And then click the Connect button located below Password. Once you connect to the remote site, the live video of camera 1 displays. If the connection fails, the error message will appear.



Selecting Cameras

Select the Camera button in the Main Menu, and the camera number buttons will appear. Select each camera number button that you want to view the live video. In the quad screen mode, you also can select the camera by touching the PDA screen.

- Monitoring Screen: Displays the live video of the selected camera. The gray screen appears if the selected camera doesn't have any signal.
- Camera OSD: Displays the camera OSD information (camera number, date and time). 'No Video' will be displayed when there is no signal.
- Camera Number Buttons: Show the available number of buttons according to the remote systems.
- Camera Selection Scroll Bar: Displayed only when more than 16 cameras are installed.

Selecting Screen Mode

Click the Screen Mode button in the Main Menu, and select the screen mode you want to display. Single, quad and full screens are available.

NOTE: In the quad screen mode, a blue line shows up around the selected camera video. The camera information of that camera is also displayed in the camera OSD field. You can change the screen mode to single or full screen by touching the camera image on the PDA screen.

NOTE: In the full screen mode, the image will be displayed vertically as shown below because the screen size is 240x320. PTZ control using arrow buttons and zoom control using volume buttons (Volume +: Zoom In, Volume -: Zoom Out) on PDA are available in the full screen mode.

Full Screen

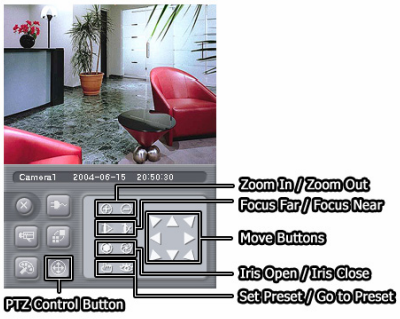
Quad Screen

Adjusting Image

Selecting Image Adjust button in the Main Menu allows you to adjust the brightness, contrast, hue and saturation of the image.

Controlling PTZ

Select the PTZ Control button in the Main Menu, and you can control pan, tilt, iris and zoom of the camera at the remote site. You also can set certain position as preset and go to desired views.


Camera1 2004-06-15 20:50:30
Zoom In / Zoom Out
Focus Far / Focus Near
Move Buttons
Iris Open / Iris Close
Set Preset / Go to Preset
PTZ Control Button

Disconnecting from the remote sites

Selecting the Disconnect button in the Main Menu disconnects from the current connection and closes WinCE RAS program.

Appendix 9 — Protocol for Remote Controlling DVR

Message Format

<BOM><ID>:<Class>:<Code>[:Operands]:<Checksum>[EOM]
where

Symbol	Value	Description
:	:	Field delimiter
<BOM>	@	Beginning of message (for command)
	<	Beginning of message (for reply)
<ID>	00~99	Device ID
<Class>	DR	Device Class (“DR” for DVR systems)
<Code>	AA~zz	Op-code (see below)
<Operands>		Optional operands defined for each operation
<Checksum>	00~99	Checksum (sum of ASCII codes before checksum discarding overflow) [i]
	*	No checksum
[EOM]	^J^M	End of message (optional: only for convenience of users using general terminal)

*All digits are used in decimal format.
*Letters are case sensitive.

Control Flow

- Every transaction consists of one command and one reply.
- Characters transmitted before <BOM> are ignored.
- The format of operands is defined independently for each op-code.
- The <BOM> received before <Checksum> of the previous message resets interpretation: i.e., discards the previous message. EXCEPTION: in case of text input, none of characters within specified length has special interpretation.

Common Reply

Reply code	Reply data	Description
ok		
er	0000~9999	Error: return error number

General Functions

Function	Code	Operands [ii]	Reply	Reply data
Power Off	PO			
Time Setting	TM	YYYYMMDDHHMMSS [iii]		
LogIn	LI	01~16:****:01~08:****		
LogOut	LO			

Cursor Control

Function	Code	Operands	Reply	Reply data
Tab	TB	F/B(direction)		
Enter	EN			
Text Input	TI	01~99(length):string [iv]		

Multiplexer (Display/Audio) Functions

Function	Code	Operands	Reply	Reply data
Screen Format	SF	0~9 [v]		
Full Screen	FS	Y/N/T(on/off/toggle)		
Camera Selection	CS	00~99(camera)		
Spot Camera	SC	00~99(spot):00~99(camera)		
Spot Sequence	SS	00~99(spot):Y/N/T(on/off/toggle)		
Sequence	SQ	Y/N/T(on/off/toggle)		
Change OSD mode	OS	0~9(mode)		
Image Brightness	IB	+/0/-(direction):Y/N(step)		
Image Contrast	IC	+/0/-(direction):Y/N(step)		
Image Hue	IH	+/0/-(direction):Y/N(step)		
Image Saturation	IS	+/0/-(direction):Y/N(step)		
Image Default	ID			

Recorder (Player) Functions

Function	Code	Operands	Reply	Reply data
Recording On/Off	RO	Y/N/T(on/off/toggle)		
Panic	PN	Y/N/T(on/off/toggle)		
Playback	PL	F/B(direction):1~9(speed)		
Playback (Still)	PS	A/Z/F/B/P/S [vi]		
Screen Mode (Search)	PM			
Show Search	PR			

Alarm Functions

Function	Code	Operands	Reply	Reply data
Alarm Mute [vii]	AU	00~99/AA(id) [viii]:Y/N/T (on/off/toggle)		
Alarm Out [ix]	AO	00~99/AA(id)		
Alarm Reset [x]	AR	00~99/AA(id)		
Alarm In	AI	00~99/AA(id)		
Reset Event-Recording	RR	00~99/AA(id) [xi]		

Telemetry Functions

Function	Code	Operands	Reply	Reply data
Pan & Tilt	PT	+/0/-(Pan dir.):+/0/-(Tilt):Y/N(step)		
PTZ Preset	PP	00~99(preset number)		
PTZ Goto Preset	PG	00~99(preset number)		
PTZ Zoom	PZ	+/0/-(direction):Y/N(step)		
PTZ Focus	PF	+/0/-(direction):Y/N(step)		
PTZ Iris	PI	+/0/-(direction):Y/N(step)		
PTZ Set Speed	PX	01~16 (speed)		
PTZ AutoPan	PA	Y/N		

Telemetry Extended Functions

Function	Code	Operands	Reply	Reply data
PTZ Select Camera	PE	00:00~99 (camera number)		
PTZ Pan Speedy Left	PE	01:00~16(Speed 00 is "Stop"):Y/N(step)[xii]		
PTZ Pan Speedy Right	PE	02:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Tilt Speedy Up	PE	03:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Tilt Speedy Down	PE	04:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Zoom Speedy Tele	PE	05:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Zoom Speedy Wide	PE	06:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Focus Speedy Near	PE	07:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Focus Speedy Far	PE	08:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ IRIS Speedy Close	PE	09:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ IRIS Speedy Open	PE	10:00~16(Speed 00 is "Stop"):Y/N(step)		
PTZ Power On/Off	PE	50:Y/N/T (on/off/toggle)		
PTZ Home Position	PE	51		
PTZ Auto Pan	PE	52:00~16 (00 means "stop")		
PTZ Tour	PE	53:00~16 (00 means "stop")		
PTZ Pattern	PE	54:00~16 (00 means "stop")		
PTZ Menu On/Off	PE	55:Y/N/T (on/off/toggle)		
PTZ Alarm Reset	PE	56		
PTZ Alarm Out Control	PE	57:00~99:Y/N/T(on/off/toggle)		
PTZ Light On/Off	PE	58:Y/N/T(on/off/toggle)		
PTZ Pump On/Off	PE	59:Y/N/T(on/off/toggle)		
PTZ Wiper On/Off	PE	60:Y/N/T(on/off/toggle)		
PTZ Aux. On/Off	PE	61:Y/N/T(on/off/toggle)[xiii]		

Getting Information from DVR

Function	Code	Operands	Reply	Reply data
Read Time	tm		tm	YYYYMMDDHHMMSS
Read Alarm In	ai		ai	01~99:00…~FF… (alarm data)
Read Alarm Out	ao		ao	01~99:00…~FF… (alarm data)
Read Disk Usage	du		du	000~100 [xiv]
Read Recording	ro		ro	Y/N
Read Panic Recording	pr		pr	Y/N
Read Playback mode	pm		pm	S/P/</>/R/F [xv]
Read Screen Format	sf		sf	0~9
Read Sequence	sq		sq	Y/N

Error code

Error	Code
Unclassified error	0000
Unsupported command	0001

Revision History

May 5, 2003 (Version 1.2)
- Added ss command for getting the status of system
- Added ao command for getting the status of alarm out

October 6, 2003 (Version 1.3)
- Added PX for specifying the speed at which PTZ moves
- Added PE for specifying the extended PTZ functions

November 5, 2003 (Version 1.4)
- Change SC, SS command to have 2 digit number for specifying spot monitor.
- Added PA for auto pan, which is different from PE:52 in PE:52 can specify the type of auto pan.

November 7, 2003 (Version 1.5)
- Add LI, LO, PM, PR commands.

[i] For DVR sample code for Checksum is followed.

```
int GetCheckSum(char *msg, int len)
{
   DWORD sum = 0;
   BYTE *p = (BYTE*)msg;
   while (len > 0) {
      sum += DWORD(*p++);
      len--;
   }
   return int(sum%100);
}

void AddCheckSum(char* msg)
{
   int len = strlen(msg);
   int checksum = GetCheckSum(msg, len);
   sprintf(msg+len, "%02d", checksum);
}
```

[ii] Notation:
- (..): explanation only: do not include in the message.
- /: single selection from list of possible symbols.
- ~: for interval.
- …: the length is not fixed but determined by preceding operand

[iii] Only 24hour format is supported: ex) 20000603135030

[iv] The text can include special characters.

[v] Next(0), Full(1), 2x2(2), 3+4(3), 3x3(4), 2+8(5), 1+12(6), 4x4(7), PIP(8)

[vi] A/Z/F/B/P/S: first, last, forward, backward, pause, stop

[vii] Alarm Mute : alarm out is off while Alarm Mute is on regardless of alarm status

[viii] 00~99/AA(id) : 00~99 for each alarm, or AA for all alarms

[ix] Alarm Out: generate alarm out, which is automatically turned off after the programmed dwell time

[x] Alarm Reset: clear alarm out

[xi] Reset Event-Recording: resets event-driven recording associated with alarm-in of the given id.

[xii] 00 means stop, 01 is the minimum speed and 16 is the maximum speed. All stop commands of left, right, up, down by this speed operand call same internal function of DVR – 'MovingStop'.

[xiii] Turn on or off the auxiliary function supported the PTZ or Dome.

[xiv] Percentage

[xv] S/P/</>/R/F : stop/pause/backward playback/forward playback/rewind/fast forward

Appendix 10 — Troubleshooting

Following are some frequent problems and solutions related to the DVR. Read this section before calling the dealer or installer.

Problem: There is no image on the screen.

Solution: Check the camera cables. If the background of the DVR system is blue, something is wrong with the camera cable or power.

Problem: How do I access Windows?

Solution: To protect unnecessary system crashes, Windows is blocked. See Appendix 1 – Accessing Windows.

Problem: I have upgraded the software. How do I reinstall it?

Solution: There are three steps to reinstall the software.
1. Uninstall the old version.
   - Go to My Computer. Select Control Panels and the Add/Delete program, and then select the DVR model.
   - The Delete button will be activated. Click Delete.
2. Scan the hard disk with the System tools under Programs/Accessories in Windows.
3. Install the new software.

Problem: The PACOM logo appears and then freezes. Sometimes the screen is black.

Solution: There is a problem with the Main Board. Reboot the DVR. If it happens often, call your dealer or installer.

Problem: The *Display setup is not correct* error message appears and opens up in the Windows mode when OK is clicked.

Solution: The DVR requires 1024x768 resolution and true color. This message will be printed on the screen when the requirements are not met. Access Display Setup and change the values for the DVR and then reboot the system.

Problem: I am trying to change the display setup, but I cannot choose True color. The resolution keeps jumping to a lower value.

Solution: Some VGA cards require a few steps. Set up the resolution first. Do not worry about the color palette. Then access Display Setup and choose True color. If it happens again, the VGA card does not support the 1024x768 resolution and True color. Change the VGA card.

Problem: The USB-serial converter has been connected to the DVR for the POS installation, however, the dialog box asking the device driver appears.

Solution: When connecting the POS device to the DVR using the USB-serial converter, connect the converter while the DVR is operating. If not, the converter driver may not be operating properly and display the dialog box asking the device driver during the system boot. However, it does not have any effect on the DVR operation. Remove the converter, and reboot the DVR and then connect the converter again.

Appendix 11 — Specifications

VIDEO	
Signal Format	NTSC or PAL (programmable)
Video Input	Composite: 1 Vp-p, 16 looping, auto-terminating (PDR16-RMT series and IDR4032 (Hybrid) models) 1 Vp-p, 75 Ohms termination (PDR32-RMT and PDR32-RMT-X models)
Monitor Outputs	Composite: Up to 10 (varied by each model), 1 Vp-p, 75 Ohms S-Video: One (PDR16-RMT-LIVE, PDR16-RMT-LIVE-X and PDR16-RMT-RT models) or Two (PDR32-RMT-X model), 1 Vp-p, 75 Ohms VGA: One
Recording Resolution	PDR16-RMT series and PDR32-RMT series models: 640x480, 640x240, 320x240, 160x120 PDR16-RMT-RT model: 704x480, 704x240, 352x240, 176x120 (704x576, 704x288, 352x288, 176x144 for PAL)
Display / Record Speed (images per second)	PDR16-RMT model: max. 120ips / 120ips (100ips / 100ips for PAL) IDR4032 (Hybrid) model: max. 120ips / 120ips (100ips / 100ips for PAL) max. 480ips / 480ips (network cameras only) PDR16-RMT-X model: max. 240ips / 240ips (200ips / 200ips for PAL) PDR32-RMT model: max. 240ips / 240ips (200ips / 200ips for PAL) PDR16-RMT-LIVE model: max. 480ips / 120ips (400ips / 100ips for PAL) PDR16-RMT-LIVE-X model: max. 480ips / 240ips (400ips / 200ips for PAL) PDR32-RMT-X model: max. 480ips / 240ips (400ips / 200ips for PAL) PDR16-RMT-RT model: max. 480ips / 480ips (400ips / 400ips for PAL)

INPUTS/OUTPUTS	
Alarm Input	16 or 32 switch closure or TTL open-collector
Alarm Output	1 (PDR16-RMT series and IDR4032 (Hybrid) models) or 2 (PDR32-RMT and PDR32-RMT-X models) relay 16 TTL (PDR16-RMT-LIVE, PDR16-RMT-LIVE-X and PDR16-RMT-RT models) or 32 TTL (PDR32-RMT-X model)
Audio Input	One, "line in" or "mic" programmable 16, "line in" (PDR16-RMT-RT model)
Audio Output	One, "line"

[i] Direct connection of a cable longer than three meters may result in noisy video image.
[ii] Do NOT use a blocked S-Video connector on the VGA card.

Specifications are subject to change without notice.

CONNECTORS	
Video Input	Composite: 16 or 32 BNC
Monitor Output	Composite: 10 BNC (varied by each model) S-Video[i]: 1 or 2 4-Pin Mini DIN VGA[ii]: 1 VGA
Audio In	Line in or microphone in Line in: 16 RCA (PDR16-RMT-RT model)
Audio Out	Line out
Alarms	Terminal block
Ethernet Port	RJ-45
RS232 Serial Port	DB9 (P)
RS485 Serial Port	Terminal block on the extension card
USB Port	Six USB connectors
Parallel Port	25 (P) D-Sub
SCSI	Standard 68 (P) SCSI II (optional)

STORAGE	
Primary Storage	EIDE hard disk drives (up to 3) Expandable up to 6 with optional IDE card
Secondary Storage	Internal: DVD RW External: SCSI hard disk drives, USB hard disk drives
Backup Storage	CD-RW

GENERAL	
Dimensions (W x H x D)	17.3" x 7.0" x 19.5" (440mm x 178mm x 496mm)
Unit Weight	51.58 lbs. (23.40kg) (PDR16-RMT-RT model) 44.56 lbs. (20.23kg) (PDR16-RMT series and IDR4032 (Hybrid) models) 44.52 lbs. (20.21kg) (PDR32-RMT and PDR32-RMT-X models)
Shipping Weight	61.9 lbs. (28.1kg) (PDR16-RMT-RT model) 50.13 lbs. (22.76kg) (PDR16-RMT series and IDR4032 (Hybrid) models) 50.1 lbs. (22.74kg) (PDR32-RMT and PDR32-RMT-X models)
Shipping Dimensions (W x H x D)	23.2" x 13.7" x 30.7" (590mm x 350mm x 780mm)
Operating Temperature	41°F to 104°F (5°C to 40°C)
Operating Humidity	0% to 90%
Power	100 to 240 VAC, 2.0-5.5A, 50/60Hz

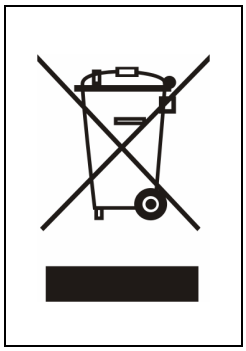
MISCELLANEOUS	
Approvals	FCC, CE, UL
Options	IDE extension card[iii], SCSI card[iii], Secondary storage devices

[iii] Do NOT use both IDE extension card and SCSI card at the same time.

Specifications are subject to change without notice.

WEEE (*Waste Electrical & Electronic Equipment*)

Correct Disposal of This Product
(Applicable in the European Union and other European countries with separate collection systems)



This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.